

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Pillar et al.
Title: REFUSE VEHICLE CONTROL SYSTEM AND METHOD
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DECLARATION UNDER 37 C.F.R. § 1.131

Commissioner for Patents
Washington, D.C. 20231

Sir:

We, Duane Pillar and William Woolman, state and declare that:

1. We are the inventors of claims 1-7, 13, 14, 31-35, 46-48 and 52-68 of the patent application identified above.
2. Prior to May 15, 2003, we conceived of the invention described and claimed in claims 1-7, 13, 14, 31-35, 46-48 and 52-68 of the above-referenced application as evidenced by the attached Exhibits A, B-1, B-2, C, D, E, F-1, F-2, G, H, I, J and K referenced herein.
3. On March 4, 2003, Foley & Lardner LLP was contracted to draft a patent application for the invention described and claimed in claims 1-7, 13, 14, 31-35, 46-48 and 52-68 of the above-referenced application as evidenced by the attached Exhibit L. Exhibit L is a Foley & Lardner LLP patent application approval form.
4. Foley and Lardner assigned attorney Scott C. Nielson to draft the above-referenced application as evidenced by the attached Exhibit M. Mr. Nielson was diligent in compiling the required information for the patent application and drafting the patent application

as evidenced by the attached Exhibits M, N, O and Q. Exhibit M is attorney Scott C. Nielson's declaration. Exhibit N is the billing records for patent application 10/668,002. Exhibit O is the history of the patent application file (File Number 1,447,005). Exhibit Q is the history of a memo to file regarding foreign filing (File Number 1,415,189).

6. On October 10, 2001, the IO and Cable List From Geesink document (Exhibit R) was created as evidenced by Exhibit S. The IO and Cable List From Geesink document was continuously modified to incorporate progress being made to reduce to practice the invention described and claimed in claims 1-7, 13, 14, 31-35, 46-48 and 52-68 of the above-referenced application until October 2, 2003 as evidenced by the attached Exhibit S.

7. On September 22, 2003, the invention described and claimed in claims 1-7, 13, 14, 31-35, 46-48 and 52-68 of the above-referenced application was constructively reduced to practice by filing patent application number 10/668,002.

8. The conception and reduction to practice occurred in the United States.

9. The Exhibits A, B-1, B-2, C, D, E, F-1, F-2, G, H, I, J and K were created by Gert Meilink. Gert Meilink is an independent electrical contractor. Gert Meilink is not an inventor.

10. Gert Meilink was contracted by Geesink which is located in Netherlands to create Exhibits A, B-1, B-2, C, D, E, F-1, F-2, G, H, I, J and K. Geesink is a subsidiary of Oshkosh Truck Corporation.

11. We directed the development of Exhibits A, B-1, B-2, C, D, E, F-1, F-2, G, H, I, J and K prior to May 15, 2003.

12. Exhibit A is a general description of a loading refuse vehicle which states:

The control system will incorporate proprietary extended CAN (J1939/1 & /2) data bus network communications to monitor and control various system functions. A VIM (Vehicle Interface Module), various Input and Output modules, operator display and numerous body and cab mounted switches will be used for system operation. This equipment shall be exposed to various

environmental extremes (i.e. High Moisture Exposure, Low/High Temperature, Shock, Vibration, etc.). It is further intended that the VIM and display will be designed as a Line Replaceable Unit (LRU) for easy field replacement/servicing.

13. Exhibits B-1 and B-2 are specification sheets for the loading refuse vehicle.

B-1 states: The chassis interface consists of a number of signals.

B-2 states: When the signal is "high" the controlling system (PLC) knows that the engine of the truck is running, this engine delivers by use of the PTO (Power Take Off) the necessary hydraulic energy.

14. Exhibit C is a specification sheet for the loading refuse vehicle. Exhibit C. states:

Releasing the brake pedal and/or the clutch pedal results in stopping any operation of the body.

15. Exhibit D is a specification sheet for the loading refuse vehicle. Exhibit D states:

Signal "Speed > 10km/h" comes from the tachnograph. This signal becomes "high" when the speed is larger than 10 km/h. When the drive signal becomes "high" the controlling system ensures that the body and lifting device cannot be started.

16. Exhibit E is a specification sheet for the loading refuse vehicle and shows when the vehicle is in reverse the output device is disabled.

17. Exhibits F-1 and F-2 are specification sheets for the loading refuse vehicle. They show a refuse loader, a refuse compactor and a tailgate.

18. Exhibit G is a specification sheet for the loading refuse vehicle. It states:

As soon as the vehicle starts driving, an already started compaction cycle will be completed. If the function start

“continuous” is activated, it will stop after the compaction mechanism has finished its cycle.

19. Exhibit H is a specification sheet for the loading refuse vehicle. It shows an emergency circuit configured to operate under numerous conditions.

20. Exhibit I is a specification sheet for the loading refuse vehicle. It states:

In this configuration the signal “D” (drive) is a combined signal of the signal “parking brake” and the “neutral” signal of the automatic gear box. Signal “D” drive is “high” if: 1) the automatic gear box is in Drive; 2) the automatic gear box is in Neutral and the Parking brake is not activated. Signal “D” drive is “low” if: 1) the automatic gear box is in Neutral and the Parking brake is activated.

21. Exhibit J is a specification sheet for the loading refuse vehicle. It states:

By this function the automatic gearbox is put into the Neutral position when the brake pedal is applied by the driver. As soon as the driving speed of the vehicle is lower than 5 km/h the gearbox is shifted into Neutral. When the Neutral position is reached the body is allowed to go into operation.

22. Exhibit K is a specification sheet for the loading refuse vehicle. It states:

To realize this option, the chassis needs to be ordered with a modification so that when the signal “Auto-neutral” is “high” the automatic gearbox is shifted into Neutral after the brake pedal is operated and the driving speed is lower than 5 km/h. Additional to the “Auto-neutral” option it is needed that after releasing the brake pedal the automatic gearbox is shifted into Drive.

23. The following claim charts provide a more specific correlation between Exhibits A, B-1, B-2, C, D, E, F-1, F-2, G, H, I, J and K and claims 1-7, 13, 14, 31-35, 46-48 and 52-68

of the patent application identified above. Exhibits A, B-1, B-2, C, D, E, F-1, F-2, G, H, I, J and K are product specifications.

Claim 1	
Text of Claim	Evidence of Reduction to Practice
A refuse vehicle comprising:	Exhibit A states "[t]he GPM Ile is suitable for the collection of bulky and/or domestic refuse and it can also handle various types of containers."
a transmission; and	Exhibits B-1 and C. Exhibit B states "[t]his signal initiates that the engine of the truck is running." Exhibit C states "when the gearbox of the vehicle is not in its neutral position...."
a control system which comprises:	Exhibit A states "[t]he control system will incorporate proprietary extended"
a plurality of microprocessor based interface modules;	Exhibit A states "[t]he control system will incorporate proprietary extended CAN (J1939/1 & /2) data bus network communications to monitor and control various system functions. A VIM (Vehicle Interface Module), various Input and Output modules, operator display, and numerous body and cab mounted switches will be used for system operation."
a communication network configured to interconnect the plurality of interface modules; and	Exhibit A states "[t]he control system will incorporate proprietary extended CAN (J1939/1 & /2) data bus network communications to monitor and control various system functions. A VIM (Vehicle Interface Module), various Input and Output modules, operator display, and numerous body and cab mounted switches will be used for system operation."
at least one output device;	Exhibit A states "[a] VIM (Vehicle Interface Module), various Input and Output modules...."
wherein the control system is configured to immediately disable the output device when the transmission is put into gear.	Exhibit C states "[t]he driver of the vehicle needs only to apply the brake pedal and/or the clutch pedal without putting the gearbox into Neutral position, to allow the body any operation. During the collection of refuse the driver needs to keep the brake pedal and/or clutch pedal activated. Releasing the brake pedal and/or the clutch pedal results in stopping any operation of the body."

Claim 2	
Text of Claim	Evidence of Reduction to Practice
The refuse vehicle of claim 1 wherein the control system is configured to, when the transmission is in gear, enable the output device when a brake is engaged and/or a clutch is disengaged.	Exhibits C and I. Exhibit C states "[t]he driver of the vehicle needs only to apply the brake pedal and/or the clutch pedal without putting the gearbox into Neutral position, to allow the body any operation. During the collection of refuse the driver needs to keep the brake pedal and/or clutch pedal activated. Releasing the brake pedal and/or the clutch pedal results in stopping any operation of the body. Exhibit I states "[i]n this configuration the signal "D"

	(drive) is a combined signal of the signal "parking brake" and the "neutral" signal of the automatic gear box. Signal "D" drive is "high" if: 1) the automatic gear box is in Drive; 2) the automatic gear box is in Neutral and the Parking brake is not activated. Signal "D" drive is "low" if: 1) the automatic gear box is in Neutral and the Parking brake is activated.
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Claim 3	
Text of Claim	Evidence of Reduction to Practice
The refuse vehicle of claim 2 wherein the transmission is a manual transmission.	Exhibit C states "[t]he driver of the vehicle needs only to apply the brake pedal and/or the clutch pedal without putting the gearbox into Neutral position, to allow the body any operation."

Claim 4	
Text of Claim	Evidence of Reduction to Practice
The refuse vehicle of claim 1 further comprising a chassis which includes the transmission; and a body; wherein the output device pertains to the body of the refuse vehicle.	Exhibits A, B-1 and C. Exhibit A states "[t]he GPM Ile is suitable for the collection of bulky and/or domestic refuse and it can also handle various types of containers." Exhibit B states "[t]his signal initiates that the engine of the truck is running." Exhibit C states "when the gearbox of the vehicle is not in its neutral position...."

Claim 5	
Text of Claim	Evidence of Reduction to Practice
The refuse vehicle of claim 1 wherein the output device receives power from a power takeoff.	Exhibit B-2 states "[w]hen the signal is "high" the controlling system (PLC) knows that the engine of the truck is running, this engine delivers by use of the PTO (Power Take Off) the necessary hydraulic energy."

Claim 6	
Text of Claim	Evidence of Reduction to Practice
The refuse vehicle of claim 1 wherein the control system is configured to enable the output device by moving the transmission out of gear when a brake is engaged and the refuse vehicle is not moving faster than a threshold speed.	Exhibit J states "[b]y this function the automatic gearbox is put into the Neutral position when the brake pedal is applied by the driver. As soon as the driving speed of the vehicle is lower than 5 km/h the gearbox is shifted into Neutral. When the Neutral position is reached the body is allowed to go into operation."

Claim 7	
Text of Claim	Evidence of Reduction to Practice
The refuse vehicle of claim 6 wherein the control system is configured to move the transmission into gear when the brake is disengaged.	Exhibit K states "[t]o realize this option, the chassis needs to be ordered with a modification so that when the signal "Auto-neutral" is "high" the automatic gearbox is shifted into Neutral after the brake pedal is operated and the driving speed is lower than 5 km/h. Additional to the "Auto-neutral" option it is needed that after releasing the brake pedal the automatic gearbox is shifted into Drive."

Claim 13	
Text of Claim	Evidence of Reduction to Practice
The refuse vehicle of claim 1 wherein the control system further comprises a plurality of input devices; a plurality of output devices; and a transmission subsystem control system which includes an electronic control unit, the transmission subsystem control system being configured to include transmission status information;	Exhibit A shows various Input and Output modules, operator display and numerous body and cab mounted switches used for system operation. Transmission status was one of the data points being monitored.
wherein each of the plurality of interface modules is coupled to respective ones of the plurality of input devices and the plurality of output devices; wherein the transmission status information is communicated from the transmission subsystem control system to at least one of the plurality of interface modules where it is stored.	Exhibit A shows various Input and Output modules, operator display and numerous body and cab mounted switches used for system operation. Transmission status was one of the data points being monitored and stored.

Claim 14	
Text of Claim	Evidence of Reduction to Practice
A refuse vehicle comprising:	Exhibit A states "[t]he GPM 11e is suitable for the collection of bulky and/or domestic refuse and it can also handle various types of containers."
a control system which comprises:	Exhibit A states "[t]he control system will incorporate proprietary extended"
a plurality of microprocessor based interface modules;	Exhibit A states "[t]he control system will incorporate proprietary extended CAN (J1939/1 & /2) data bus network communications to monitor and control various system functions. A VIM (Vehicle Interface Module), various Input and Output modules, operator display, and numerous body and cab mounted switches will be used for system operation."
a communication network configured to interconnect the plurality of interface modules; and	Exhibit A states "[t]he control system will incorporate proprietary extended CAN (J1939/1 & /2) data bus network communications to monitor

	and control various system functions. A VIM (Vehicle Interface Module), various Input and Output modules, operator display, and numerous body and cab mounted switches will be used for system operation."
at least one output device;	Exhibit A states "[a] VIM (Vehicle Interface Module), various Input and Output modules...."
wherein the control system is configured to disable the output device when the refuse vehicle reaches a threshold speed.	Exhibit D states "Signal "Speed > 10km/h" comes from the tachnograph. This signal becomes "high" when the speed is larger than 10 km/h. When the drive signal becomes "high" the controlling system ensures that the body and lifting device cannot be started."

Claim 31	
Text of Claim	Evidence of Reduction to Practice
A refuse vehicle comprising:	Exhibit A states "[t]he GPM Ile is suitable for the collection of bulky and/or domestic refuse and it can also handle various types of containers."
a control system which comprises:	Exhibit A states "[t]he control system will incorporate proprietary extended"
a plurality of microprocessor based interface modules;	Exhibit A states "[t]he control system will incorporate proprietary extended CAN (J1939/1 & /2) data bus network communications to monitor and control various system functions. A VIM (Vehicle Interface Module), various Input and Output modules, operator display, and numerous body and cab mounted switches will be used for system operation."
a communication network configured to interconnect the plurality of interface modules; and	Exhibit A states "[t]he control system will incorporate proprietary extended CAN (J1939/1 & /2) data bus network communications to monitor and control various system functions. A VIM (Vehicle Interface Module), various Input and Output modules, operator display, and numerous body and cab mounted switches will be used for system operation."
at least one output device;	Exhibit A states "[a] VIM (Vehicle Interface Module), various Input and Output modules...."
wherein the control system is configured to disable the output device when the refuse vehicle is moving in reverse.	Exhibit E shows when the vehicle is in reverse the output device is disabled.

Claim 32	
Text of Claim	Evidence of Reduction to Practice
The refuse vehicle of claim 31 wherein the output device receives power from a power takeoff.	Exhibit B-2 states "[w]hen the signal is "high" the controlling system (PLC) knows that the engine of the truck is running, this engine delivers by use of the PTO (Power Take Off) the necessary hydraulic energy."

Claim 33	
Text of Claim	Evidence of Reduction to Practice
The refuse vehicle of claim 31 wherein the output device pertains to a group consisting of a refuse loader, a refuse compactor, a tailgate, and combinations thereof.	Exhibits A, F-1 and F-2. Exhibit A states "[t]he GPM Ile is suitable for the collection of bulky and/or domestic refuse and it can also handle various types of containers." F-1 and F-2 show a refuse loader, a refuse compactor and a tailgate.

Claim 34	
Text of Claim	Evidence of Reduction to Practice
The refuse vehicle of claim 31 wherein the control system is configured to disable the output device from being actuated when the vehicle is moving in reverse, the control system being configured to enable, when the vehicle is moving in reverse, the output device to complete an operation initiated when the vehicle was not moving in reverse.	Exhibits E and G. Exhibit E shows when the vehicle is in reverse the output device is disabled. Exhibit G states "[a]s soon as the vehicle starts driving, an already started compaction cycle will be completed. If the function start "continuous" is activated, it will stop after the compaction mechanism has finished its cycle."

Claim 35	
Text of Claim	Evidence of Reduction to Practice
The refuse vehicle of claim 31 further comprising a chassis; and a body; wherein the output device pertains to the body of the refuse vehicle.	Exhibits A, B-1 and C. Exhibit A states "[t]he GPM Ile is suitable for the collection of bulky and/or domestic refuse and it can also handle various types of containers." Exhibit B states "[t]his signal initiates that the engine of the truck is running." Exhibit C states "when the gearbox of the vehicle is not in its neutral position...."

Claim 46	
Text of Claim	Evidence of Reduction to Practice
A refuse vehicle comprising:	Exhibit A states "[t]he GPM Ile is suitable for the collection of bulky and/or domestic refuse and it can also handle various types of containers."
a control system comprising:	Exhibit A states "[t]he control system will incorporate proprietary extended"
a plurality of microprocessor based interface modules; and	Exhibit A states "[t]he control system will incorporate proprietary extended CAN (J1939/1 & /2) data bus network communications to monitor and control various system functions. A VIM (Vehicle Interface Module), various Input and Output modules, operator display, and numerous body and cab mounted switches will be used for system operation."
a communication network configured to interconnect the plurality of interface modules;	Exhibit A states "[t]he control system will incorporate proprietary extended CAN (J1939/1 &

Claim 46	
Text of Claim	Evidence of Reduction to Practice
	/2) data bus network communications to monitor and control various system functions. A VIM (Vehicle Interface Module), various Input and Output modules, operator display, and numerous body and cab mounted switches will be used for system operation."
wherein the control system is configured to prevent the refuse loader from initiating a refuse handling operation when the vehicle is moving, the control system being configured to allow, when the vehicle is moving, the refuse loader to complete a refuse handling operation initiated when the vehicle was not moving.	Exhibits D and G. Exhibit D states "Signal "Speed > 10km/h" comes from the tachnograph. This signal becomes "high" when the speed is larger than 10 km/h. When the drive signal becomes "high" the controlling system ensures that the body and lifting device cannot be started." Exhibit G states "[a]s soon as the vehicle starts driving, an already started compaction cycle will be completed. If the function start "continuous" is activated, it will stop after the compaction mechanism has finished its cycle."

Claim 47	
Text of Claim	Evidence of Reduction to Practice
The refuse vehicle of claim 46 wherein the refuse handling operation comprises compacting refuse in the refuse vehicle.	Exhibits A, F-1 and F-2. Exhibit A states "[t]he GPM Ile is suitable for the collection of bulky and/or domestic refuse and it can also handle various types of containers." F-1 and F-2 show a refuse loader, a refuse compactor and a tailgate.

Claim 48	
Text of Claim	Evidence of Reduction to Practice
The refuse vehicle of claim 46 wherein the refuse handling operation comprises loading refuse in the refuse vehicle.	Exhibits A, F-1 and F-2. Exhibit A states "[t]he GPM Ile is suitable for the collection of bulky and/or domestic refuse and it can also handle various types of containers." F-1 and F-2 show a refuse loader, a refuse compactor and a tailgate.

Claim 52	
Text of Claim	Evidence of Reduction to Practice
A refuse vehicle comprising:	Exhibit A states "[t]he GPM Ile is suitable for the collection of bulky and/or domestic refuse and it can also handle various types of containers."
a control system comprising:	Exhibit A states "[t]he control system will incorporate proprietary extended"
a plurality of input devices including an emergency stop;	Exhibits A and H. Exhibit A states "[a] VIM (Vehicle Interface Module), various Input and Output modules...." Exhibit H shows an emergency circuit configured to operate under numerous conditions.
a plurality of output devices;	Exhibit A. Exhibit A states "[a] VIM (Vehicle Interface Module), various Input and Output

a plurality of microprocessor based interface modules and a communication network, the plurality of interface modules being interconnected to each other by way of the communication network, each of the plurality of interface modules being coupled to respective ones of the plurality of input devices and the plurality of output devices, and the plurality of interface modules storing I/O status information for the plurality of input devices and the plurality of output devices; and	modules...."
wherein the control system is configured to disable the plurality of output devices when the emergency stop is activated.	Exhibit A states "[t]he control system will incorporate proprietary extended CAN (J1939/1 & /2) data bus network communications to monitor and control various system functions. A VIM (Vehicle Interface Module), various Input and Output modules, operator display, and numerous body and cab mounted switches will be used for system operation."
	Exhibit H shows an emergency circuit configured to operate under numerous conditions.

Claim 53	
Text of Claim	Evidence of Reduction to Practice
The refuse vehicle of claim 52 further comprising a chassis; and a body; wherein the plurality of output devices include output devices pertaining to the body that receive power from a power takeoff.	Exhibits A, B-2, F-1 and F-2. Exhibit A states "[t]he GPM IIe is suitable for the collection of bulky and/or domestic refuse and it can also handle various types of containers." Exhibit B-2 states "[w]hen the signal is "high" the controlling system (PLC) knows that the engine of the truck is running, this engine delivers by use of the PTO (Power Take Off) the necessary hydraulic energy." F-1 and F-2 show a refuse loader, a refuse compactor and a tailgate.

Claim 54	
Text of Claim	Evidence of Reduction to Practice
The refuse vehicle of claim 52 further comprising a chassis; and a body; wherein the plurality of output devices are those output devices pertaining to the body.	Exhibit B-2 states "[t]his signal is used for the GCP (two-compartment) body and takes care that the bin lifting frame are raised when driving faster than 5 km/h."

Claim 55	
Text of Claim	Evidence of Reduction to Practice
A method for controlling a refuse vehicle comprising:	Exhibit A states "[t]he GPM IIe is suitable for the collection of bulky and/or domestic refuse and it can also handle various types of containers."
disabling a plurality of output devices of the refuse vehicle when a transmission of the refuse vehicle is in gear;	Exhibit D states "Signal "Speed > 10km/h" comes from the tachnograph. This signal becomes "high" when the speed is larger than 10 km/h. When the drive signal becomes "high" the controlling system ensures that the body and lifting device cannot be started."

Claim 55	
Text of Claim	Evidence of Reduction to Practice
enabling the plurality of output devices when a brake of the refuse vehicle is engaged;	Exhibit J states "[b]y this function the automatic gearbox is put into the Neutral position when the brake pedal is applied by the driver. As soon as the driving speed of the vehicle is lower than 5 km/h the gearbox is shifted into Neutral. When the Neutral position is reached the body is allowed to go into operation."
disabling the plurality of output devices when the brake pedal is disengaged;	Exhibits D and J. Exhibit D states "Signal "Speed > 10km/h" comes from the tachnograph. This signal becomes "high" when the speed is larger than 10 km/h. When the drive signal becomes "high" the controlling system ensures that the body and lifting device cannot be started." Exhibit J states "[b]y this function the automatic gearbox is put into the Neutral position when the brake pedal is applied by the driver. As soon as the driving speed of the vehicle is lower than 5 km/h the gearbox is shifted into Neutral. When the Neutral position is reached the body is allowed to go into operation."
wherein all three steps are performed by a control system that comprises a plurality of microprocessor based interface modules, the plurality of interface modules being interconnected by way of a communication network.	Exhibit A states "[t]he control system will incorporate proprietary extended CAN (J1939/1 & /2) data bus network communications to monitor and control various system functions. A VIM (Vehicle Interface Module), various Input and Output modules, operator display, and numerous body and cab mounted switches will be used for system operation."

Claim 56	
Text of Claim	Evidence of Reduction to Practice
The method of claim 55 wherein the plurality of output devices are enabled by moving the transmission out of gear when the brake is engaged.	Exhibit J states "[b]y this function the automatic gearbox is put into the Neutral position when the brake pedal is applied by the driver. As soon as the driving speed of the vehicle is lower than 5 km/h the gearbox is shifted into Neutral. When the Neutral position is reached the body is allowed to go into operation."

Claim 57	
Text of Claim	Evidence of Reduction to Practice
The method of claim 56 wherein the plurality of output devices are disabled by moving the transmission back into gear when the brake is disengaged.	Exhibits D and J. Exhibit D states "Signal "Speed > 10km/h" comes from the tachnograph. This signal becomes "high" when the speed is larger than 10 km/h. When the drive signal becomes "high" the controlling system ensures that the body and lifting device cannot be started." Exhibit J states "[b]y this function the automatic gearbox is put into the Neutral position when the brake pedal is applied by

Claim 57	
Text of Claim	Evidence of Reduction to Practice
	the driver. As soon as the driving speed of the vehicle is lower than 5 km/h the gearbox is shifted into Neutral. When the Neutral position is reached the body is allowed to go into operation."

Claim 58	
Text of Claim	Evidence of Reduction to Practice
The method of claim 55 wherein the plurality of output devices receive power from a power takeoff.	Exhibit B-2 states "[w]hen the signal is "high" the controlling system (PLC) knows that the engine of the truck is running, this engine delivers by use of the PTO (Power Take Off) the necessary hydraulic energy."

Claim 59	
Text of Claim	Evidence of Reduction to Practice
A refuse vehicle comprising:	Exhibit A states "[t]he GPM Ile is suitable for the collection of bulky and/or domestic refuse and it can also handle various types of containers."
a transmission; and	Exhibits B-1 and C. Exhibit B states "[t]his signal initiates that the engine of the truck is running." Exhibit C states "when the gearbox of the vehicle is not in its neutral position...."
a control system which comprises:	Exhibit A states "[t]he control system will incorporate proprietary extended"
a plurality of microprocessor based interface modules;	Exhibit A states "[t]he control system will incorporate proprietary extended CAN (J1939/1 & /2) data bus network communications to monitor and control various system functions. A VIM (Vehicle Interface Module), various Input and Output modules, operator display, and numerous body and cab mounted switches will be used for system operation."
a communication network configured to interconnect the plurality of interface modules; and	Exhibit A states "[t]he control system will incorporate proprietary extended CAN (J1939/1 & /2) data bus network communications to monitor and control various system functions. A VIM (Vehicle Interface Module), various Input and Output modules, operator display, and numerous body and cab mounted switches will be used for system operation."
at least one output device;	Exhibit A. Exhibit A states "[a] VIM (Vehicle Interface Module), various Input and Output modules...."
wherein the control system is configured to disable the output device when the transmission is in gear; and	Exhibit D states "Signal "Speed > 10km/h" comes from the tachnograph. This signal becomes "high" when the speed is larger than 10 km/h. When the drive signal becomes "high" the controlling system ensures that the body and lifting device cannot be

Claim 59	
Text of Claim	Evidence of Reduction to Practice
wherein the control system is configured to enable the output device by moving the transmission out of gear when a brake is engaged and the refuse vehicle is not moving faster than a threshold speed of approximately 2 kilometers per hour to approximately 20 kilometers per hour.	started.” Exhibits D and J. Exhibit D states “Signal “Speed > 10km/h” comes from the tachnograph. This signal becomes “high” when the speed is larger than 10 km/h. When the drive signal becomes “high” the controlling system ensures that the body and lifting device cannot be started.” Exhibit J states “[b]y this function the automatic gearbox is put into the Neutral position when the brake pedal is applied by the driver. As soon as the driving speed of the vehicle is lower than 5 km/h the gearbox is shifted into Neutral. When the Neutral position is reached the body is allowed to go into operation.”

Claim 60	
Text of Claim	Evidence of Reduction to Practice
The refuse vehicle of claim 59 wherein the threshold speed is between approximately 4 kilometers per hour and approximately 8 kilometers per hour.	This is within the scope of Exhibit J. Exhibit J states “[b]y this function the automatic gearbox is put into the Neutral position when the brake pedal is applied by the driver. As soon as the driving speed of the vehicle is lower than 5 km/h the gearbox is shifted into Neutral. When the Neutral position is reached the body is allowed to go into operation.”

Claim 61	
Text of Claim	Evidence of Reduction to Practice
A refuse vehicle comprising:	Exhibit A states “[t]he GPM Ile is suitable for the collection of bulky and/or domestic refuse and it can also handle various types of containers.”
a transmission; and	Exhibits B-1 and C. Exhibit B states “[t]his signal initiates that the engine of the truck is running.” Exhibit C states “when the gearbox of the vehicle is not in its neutral position....”
a control system which comprises:	Exhibit A states “[t]he control system will incorporate proprietary extended”
a plurality of microprocessor based interface modules;	Exhibit A states “[t]he control system will incorporate proprietary extended CAN (J1939/1 & /2) data bus network communications to monitor and control various system functions. A VIM (Vehicle Interface Module), various Input and Output modules, operator display, and numerous body and cab mounted switches will be used for system operation.”
a communication network configured to interconnect the plurality of interface modules; and	Exhibit A states “[t]he control system will incorporate proprietary extended CAN (J1939/1 & /2) data bus network communications to monitor and control various system functions. A VIM (Vehicle Interface Module), various Input and

Claim 61	
Text of Claim	Evidence of Reduction to Practice
	Output modules, operator display, and numerous body and cab mounted switches will be used for system operation."
at least one output device;	Exhibit A. Exhibit A states "[a] VIM (Vehicle Interface Module), various Input and Output modules...."
wherein the control system is configured to disable the output device when the transmission is in gear; and	Exhibit D states "Signal "Speed > 10km/h" comes from the tachnograph. This signal becomes "high" when the speed is larger than 10 km/h. When the drive signal becomes "high" the controlling system ensures that the body and lifting device cannot be started."
wherein the control system is configured to disable the output device from being actuated when the transmission is in gear, the control system being configured to enable, when the transmission is in gear, the output device to complete an operation initiated when the transmission was not in gear.	Exhibit G states "[a]s soon as the vehicle starts driving, an already started compaction cycle will be completed. If the function start "continuous" is activated, it will stop after the compaction mechanism has finished its cycle."

Claim 62	
Text of Claim	Evidence of Reduction to Practice
The refuse vehicle of claim 61 wherein the operation comprises compacting refuse in the refuse vehicle.	Exhibits A, F-1 and F-2. Exhibit A states "[t]he GPM Ile is suitable for the collection of bulky and/or domestic refuse and it can also handle various types of containers." F-1 and F-2 show a refuse loader, a refuse compactor and a tailgate.

Claim 63	
Text of Claim	Evidence of Reduction to Practice
The refuse vehicle of claim 61 wherein the operation comprises loading refuse in the refuse vehicle.	Exhibits A, F-1 and F-2. Exhibit A states "[t]he GPM Ile is suitable for the collection of bulky and/or domestic refuse and it can also handle various types of containers." F-1 and F-2 show a refuse loader, a refuse compactor and a tailgate.

Claim 64	
Text of Claim	Evidence of Reduction to Practice
A refuse vehicle comprising:	Exhibit A states "[t]he GPM Ile is suitable for the collection of bulky and/or domestic refuse and it can also handle various types of containers."
a control system which comprises:	Exhibit A states "[t]he control system will incorporate proprietary extended"
a plurality of microprocessor based interface modules;	Exhibit A states "[t]he control system will incorporate proprietary extended CAN (J1939/1 & /2) data bus network communications to monitor

	and control various system functions. A VIM (Vehicle Interface Module), various Input and Output modules, operator display, and numerous body and cab mounted switches will be used for system operation."
a communication network configured to interconnect the plurality of interface modules; and	Exhibit A states "[t]he control system will incorporate proprietary extended CAN (J1939/1 & /2) data bus network communications to monitor and control various system functions. A VIM (Vehicle Interface Module), various Input and Output modules, operator display, and numerous body and cab mounted switches will be used for system operation."
at least one output device;	Exhibit A. Exhibit A states "[a] VIM (Vehicle Interface Module), various Input and Output modules...."
wherein the control system is configured to disable the output device when the refuse vehicle reaches a threshold speed of approximately 2 kilometers per hour to approximately 20 kilometers per hour.	This is within the scope of Exhibit J. Exhibit J states "[b]y this function the automatic gearbox is put into the Neutral position when the brake pedal is applied by the driver. As soon as the driving speed of the vehicle is lower than 5 km/h the gearbox is shifted into Neutral. When the Neutral position is reached the body is allowed to go into operation."

Claim 65	
Text of Claim	Evidence of Reduction to Practice
The refuse vehicle of claim 64 wherein the threshold speed is approximately 4 kilometers per hour to approximately 10 kilometers per hour.	This is within the scope of Exhibit J. Exhibit J states "[b]y this function the automatic gearbox is put into the Neutral position when the brake pedal is applied by the driver. As soon as the driving speed of the vehicle is lower than 5 km/h the gearbox is shifted into Neutral. When the Neutral position is reached the body is allowed to go into operation."

Claim 66	
Text of Claim	Evidence of Reduction to Practice
A refuse vehicle comprising:	Exhibit A states "[t]he GPM IIe is suitable for the collection of bulky and/or domestic refuse and it can also handle various types of containers."
a control system which comprises:	Exhibit A states "[t]he control system will incorporate proprietary extended"
a plurality of microprocessor based interface modules;	Exhibit A states "[t]he control system will incorporate proprietary extended CAN (J1939/1 & /2) data bus network communications to monitor and control various system functions. A VIM (Vehicle Interface Module), various Input and Output modules, operator display, and numerous body and cab mounted switches will be used for system operation."
a communication network configured to	Exhibit A states "[t]he control system will

interconnect the plurality of interface modules; and	incorporate proprietary extended CAN (J1939/1 & /2) data bus network communications to monitor and control various system functions. A VIM (Vehicle Interface Module), various Input and Output modules, operator display, and numerous body and cab mounted switches will be used for system operation."
at least one output device which pertains to a refuse loader;	Exhibits A, F-1 and F-2. Exhibit A states "[t]he GPM Ile is suitable for the collection of bulky and/or domestic refuse and it can also handle various types of containers." Exhibit A further states "[a] VIM (Vehicle Interface Module), various Input and Output modules...." F-1 and F-2 show a refuse loader, a refuse compactor and a tailgate.
wherein the control system is configured to disable the output device when the refuse vehicle reaches a threshold speed.	Exhibit J states "[b]y this function the automatic gearbox is put into the Neutral position when the brake pedal is applied by the driver. As soon as the driving speed of the vehicle is lower than 5 km/h the gearbox is shifted into Neutral. When the Neutral position is reached the body is allowed to go into operation."

Claim 67	
Text of Claim	Evidence of Reduction to Practice
A refuse vehicle comprising:	Exhibit A states "[t]he GPM Ile is suitable for the collection of bulky and/or domestic refuse and it can also handle various types of containers."
a control system which comprises:	Exhibit A states "[t]he control system will incorporate proprietary extended"
a plurality of microprocessor based interface modules;	Exhibit A states "[t]he control system will incorporate proprietary extended CAN (J1939/1 & /2) data bus network communications to monitor and control various system functions. A VIM (Vehicle Interface Module), various Input and Output modules, operator display, and numerous body and cab mounted switches will be used for system operation."
a communication network configured to interconnect the plurality of interface modules; and	Exhibit A states "[t]he control system will incorporate proprietary extended CAN (J1939/1 & /2) data bus network communications to monitor and control various system functions. A VIM (Vehicle Interface Module), various Input and Output modules, operator display, and numerous body and cab mounted switches will be used for system operation."
at least one output device which pertains to a refuse compactor;	Exhibits A, F-1 and F-2. Exhibit A states "[t]he GPM Ile is suitable for the collection of bulky and/or domestic refuse and it can also handle various types of containers." Exhibit A further states "[a] VIM (Vehicle Interface Module), various Input and Output modules...." F-1 and F-2 show a refuse loader, a refuse compactor and a tailgate.

Claim 67	
Text of Claim	Evidence of Reduction to Practice
wherein the control system is configured to disable the output device when the refuse vehicle reaches a threshold speed.	Exhibit J states "[b]y this function the automatic gearbox is put into the Neutral position when the brake pedal is applied by the driver. As soon as the driving speed of the vehicle is lower than 5 km/h the gearbox is shifted into Neutral. When the Neutral position is reached the body is allowed to go into operation."

Claim 68	
Text of Claim	Evidence of Reduction to Practice
A refuse vehicle comprising:	Exhibit A states "[t]he GPM Ile is suitable for the collection of bulky and/or domestic refuse and it can also handle various types of containers."
a chassis;	Exhibit B-1 states "[t]he chassis interface consist of a number of signals."
a body; and	Exhibit B-1 states "[t]hese are universal for each type of body which Geesink produces."
a control system which comprises:	Exhibit A states "[t]he control system will incorporate proprietary extended"
a plurality of microprocessor based interface modules;	Exhibit A states "[t]he control system will incorporate proprietary extended CAN (J1939/1 & /2) data bus network communications to monitor and control various system functions. A VIM (Vehicle Interface Module), various Input and Output modules, operator display, and numerous body and cab mounted switches will be used for system operation."
a communication network configured to interconnect the plurality of interface modules; and	Exhibit A states "[t]he control system will incorporate proprietary extended CAN (J1939/1 & /2) data bus network communications to monitor and control various system functions. A VIM (Vehicle Interface Module), various Input and Output modules, operator display, and numerous body and cab mounted switches will be used for system operation."
at least one output device which pertains to the body of the refuse vehicle;	Exhibits A, F-1 and F-2. Exhibit A states "[t]he GPM Ile is suitable for the collection of bulky and/or domestic refuse and it can also handle various types of containers." Exhibit A further states "[a] VIM (Vehicle Interface Module), various Input and Output modules...." F-1 and F-2 show a refuse loader, a refuse compactor and a tailgate.
wherein the control system is configured to disable the output device when the refuse vehicle reaches a threshold speed.	Exhibit J states "[b]y this function the automatic gearbox is put into the Neutral position when the brake pedal is applied by the driver. As soon as the driving speed of the vehicle is lower than 5 km/h the gearbox is shifted into Neutral. When the Neutral position is reached the body is allowed to go into operation."

Atty. Dkt. No. 061300-0364

We hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing therefrom.

Date 3.30-07By: 
Duane PillarDate 3/29/07By: 
William Woolman

EXHIBIT A

FIRST DRAFT – PRELIMINARY- FOR REVIEW ONLY

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1. GENERAL DESCRIPTION:

1.1.1. The intent of this design specification is to identify and provide the requirements for the control of the Geesink model GPM IIe rear loading refuse collection vehicle. The GPM IIe is suitable for the collection of bulky and/or domestic refuse and it can also handle various types of containers.

1.1.2. The control system will incorporate proprietary extended CAN (J1939/1 & /2) data bus network communications to monitor and control various system functions. A VIM (Vehicle Interface Module), (various Input and Output modules, operator display, and numerous body and cab mounted switches will be used for system operation) This equipment shall be exposed to various environmental extremes (i.e. High Moisture Exposure, Low/High Temperature, Shock, Vibration, etc.). It is further intended that the VIM, and display will be designed as a Line Replaceable Unit (LRU) for easy field replacement/servicing.

1.2. CZII Component Hardware List:

- 1.2.1. (1) Vehicle Interface Module part # 3321336
- 1.2.2. (2) 24V Input Modules # 3422795
- 1.2.3. (1) 24V Current Module# 3463572
- 1.2.4. (1) Cantrak 2400 display part # 3445002
- 1.2.5. Reference: Electrical Schematic # xxxxxxxx

Oshkosh Truck Corporation

Corporate Electronics Group
2307 Oregon Street
Oshkosh, WI 54904
(920) 237-0506

Part Number: 3463588

Description: *Spec, CZ2, GPM IIe*

CAGE NO.
XXX

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Geesink B.V.

Betonweg 8

Postbus 52

8300 AB Emmeloord

Nederland

Telefoon 0527 638200

Task: Controlling the controls**Item:** Functional description GCB-split**Name:** Gert Meilink**Version:** 0.2**Date:****Page (s):** 5 van 38

2. General system

2.1. Chassis interface

2.1.1. Scope

The chassis interface consists of a number of signals.

The chassis provides signals to the PLC. But there are also signals from the PLC to the chassis.

In the used components signals are mentioned, which are used by the PLC. These are universal for each type of body which Geesink produces.

By use of a 21-pin connector the signals of the Geesink body is connected to the signals of the chassis.

The chassis builder or supplier/dealer collects needed the signals from the chassis.

Some chassis builders make use of module to convert their CAN system into conventional wiring and put a program in this module to generate the necessary signals.

Also a lot of suppliers use relays to generate the necessary signals.

2.1.2. Used components / signals

2.1.2.1. D+ signal (from chassis)

2.1.2.1.1. Body:

This signal initiates that the engine of the truck is running.

When this signal is "high" the controlling system (PLC) knows that the engine of the truck is running, this engine delivers by use of the PTO (Power Take Off) the necessary hydraulic energy.

2.1.2.1.2. Chassis:

This signal comes from the check light of the battery.

2.1.2.2. Speed > 5km/h (from chassis)

2.1.2.2.1. Body:

This signal is used for the GCP (two-compartment) body and takes care that the bin lifting frames are raised when driving faster than 5 km/h.

When the vehicle drives faster than 5 km/h this signal becomes "high".

Not used for the GCB-split.

2.1.2.2.2. Chassis:

Signal "Speed > 5 km/h" comes from the tachograph. This signal becomes "high" when the speed is larger than 5 km/h.

Geesink B.V.

Betonweg 8

Postbus 52

8300 AB Emmeloord

Nederland

Telefoon 0527 638200

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Name: Gert Meilink**Version:** 0.2**Date:****Page (s):** 5 van 38**2. General system****2.1. Chassis interface****2.1.1. Scope**

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2.1.2.1.2. Chassis:

This signal comes from the check light of the battery.

2.1.2.2. Speed > 5km/h (from chassis)**2.1.2.2.1. Body:**

This signal is used for the GCP (two-compartment) body and takes care that the bin lifting frames are raised when driving faster than 5 km/h.

When the vehicle drives faster than 5 km/h this signal becomes "high".

Not used for the GCB-split.

2.1.2.2.2. Chassis:

Signal "Speed > 5 km/h" comes from the tachograph. This signal becomes "high" when the speed is larger than 5 km/h.

Geesink B.V.
 Betonweg 8
 Postbus 52
 8300 AB Emmeloord
 Nederland
 Telefoon 0527 638200

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When this signal is "high" the vehicle has to restrictions to make:

- Prevent driving faster than 30 km/h
- Shut down the engine when the vehicle is put into Reverse.

2.1.3. Operating principle body in combination with vehicle provisions

2.1.3.1. Normal operating principle

2.1.3.1.1. Scope

When the gearbox of the vehicle is not in its Neutral position all the functions on the body are blocked for operation. This is to prevent that the vehicle wants to drive away when a raised revs control is requested from the body.

2.1.3.1.2. Realisation in the chassis:

This function is realised by the vehicle by giving a "low" signal on the PTO / Neutral signal.
 The Drive signal is not used for these signals.

2.1.3.2. Operating principle of "Auto-neutral" function in case of a manual operated gearbox

2.1.3.2.1. Scope

The function "Auto-neutral" in combination with a manual operated gearbox can be used during the collection of refuse.

The driver of the vehicle needs only to apply the brake pedal and/or the clutch pedal without putting the gearbox into Neutral position, to allow the body any operation. During the collection of refuse the driver needs to keep the brake pedal and/or the clutch pedal activated.

~~Releasing~~ Releasing the brake pedal and/or the clutch pedal results in stopping any operation of the body.

It is possible to add the function "Compacting during driving" to this option. For more information look in this paragraph.

2.1.3.2.2. Realisation in the chassis:

The Neutral signal of the combined signal PTO / Neutral is bridged.

The Drive signal is used by this function.

For more information look in this paragraph.

2.1.3.3. Operating principle of "Auto-neutral" function in case of a automatic gearbox

2.1.3.3.1. Scope

~~By this function~~ By this function the automatic gearbox is put into the Neutral position when the brake pedal is applied by the driver. As soon as the driving speed of the vehicle is lower then 5 km/h the gearbox is shifted into Neutral. When the Neutral position is reached the body is allowed to go into operation.

Geesink B.V.
 Betonweg 8
 Postbus 52
 8300 AB Emmeloord
 Nederland
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2.1.2.3. Speed > 10 km/h (from chassis)

2.1.2.3.1. Body:

This signal is used for the GCP (two-compartment) body and takes care that the scatter guard is closed when driving faster than 10 km/h, so damaging of the scatter guard is prevented.

When the vehicle drives faster than 10 km/h this signal becomes "high".

Not used for the GCB-split.

2.1.2.3.2. Chassis:

Signal "Speed > 10 km/h" comes from the tachograph.

This signal becomes "high" when the speed is larger than 10 km/h.

2.1.2.4. Parking brake signal (from chassis)

2.1.2.4.1. Body:

This signal is used for a body together with a crane loading device. This signal releases the revolution control. By use of this signal it is prevented that vehicle drives away, when the vehicle is not put on the parking brake.

2.1.2.4.2. Chassis:

This signal is provided by the parking brake.

The signal becomes "high" when the vehicle is put on the parking brake.

2.1.2.5. Drive signal (from chassis)

2.1.2.5.1. Body:

When the drive signal becomes "high" the controlling system ensures that the body and lifting device can not be started.

In case of a automatic gearbox, this signal prevents that the vehicle want to drive away when the "D" (drive) of the automatic gearbox is selected.

In case of a manual operated gearbox, this signal prevents that the driver wants/needs to drive away at a to high revolution number.

The chassis uses the signal for switching the revolution control from 1050 rpm to 800 rpm. For more information see the function compaction during driving.

2.1.2.5.2. Chassis in case of a automatic gearbox:

In this configuration the signal "D" (drive) is an combined signal of the signal "parking brake" and the "neutral" signal of the automatic gear box.

Signal "D" drive is "high" if:

- The automatic gear box is in Drive.
- The automatic gear box is in Neutral and the Parking brake is not activated.

Signal "D" drive is "low" if:

- The automatic gear box is in Neutral and the Parking brake is activated.

Geesink B.V.
 Betonweg 8
 Postbus 52
 8300 AB Emmeloord
 Nederland
 Telefoon 0527 638200

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- The automatic gear box is in Neutral and the braking pedal is activated.

2.1.2.5.3. Chassis in case of a manual operated gearbox:

In this configuration the signal "D" (drive) is an combined signal of the signals "parking brake" and the "clutch" signal of the gear box.

Signal "D" drive is "high" if:

- The gear box is not in Neutral position and the clutch pedal or braking pedal is not operated.
- The gear box is in Neutral and the Parking brake is not activated.

Signal "D" drive is "low" if:

- The clutch pedal is operated.
- The brake pedal is operated.
- The gear box is in Neutral and the Parking brake is activated.

2.1.2.6. Activating Auto-Neutral (from body)

2.1.2.6.1. Body:

With the signal "Auto-Neutral" from the body the vehicle options, which are integrated by a chassis manufacturer, can be activated and de-activated.

This signal becomes "high" as soon as the body is switched on. This is activated by operating the switch "S1" in the cabin. If there are problems with the chassis, the influence of the body to the chassis can be stopped by switching of the switch "S1".

2.1.2.6.2. Chassis:

When this signal becomes "high" the Auto-Neutral function is activated, so that the chassis can communicate with the body.

When this signal becomes "low" the Auto-Neutral function is de-activated, so that the chassis does not react on any signal of the body.

2.1.2.7. Reverse signal (from chassis)

2.1.2.7.1. Body:

When this signal is "high" the monitor in the cabin is switched on.

When this signal is "high", also the lifting is stopped.

2.1.2.7.2. Chassis:

The reverse signal is taken from the (automatic) gearbox, when the reverse is selected.

2.1.2.8. PTO / Neutral (from chassis)

2.1.2.8.1. Body:

When this signal is "high" the functions on the body can be activated.

2.1.2.8.2. Chassis:

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Betonweg 8

Postbus 52

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Nederland

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 Nederland
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Geesink B.V.
 Betonweg 8
 Postbus 52
 8300 AB Emmeloord
 Nederland
 Telefoon 0527 638200

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To realise this option, the chassis needs to be ordered with a modification so that when the signal "Auto-neutral" is "high" the automatic gearbox is shifted into Neutral after the brake pedal is operated and the driving speed is lower than 5 km/h.

Additional to the "Auto-neutral" option it is needed that after releasing the brake pedal the automatic gearbox is shifted into Drive.

2.1.3.5. Operating principle of "Compacting during driving"

2.1.3.5.1. Scope

This option is only possible in combination with the functions "Auto-neutral" and "Stop & Go".

As soon as the vehicle starts driving, an already started compaction cycle will be completed. If the function start "continuous" is activated, it will stop after the compaction mechanism has finished its cycle.

Normal operation:

Step	Condition	Action
1	The vehicle is put into a gear (no more Neutral).	Active compaction cycle is finished.
2	Finished cycle.	Further operation of the body is not allowed.

2.1.3.5.2. Realisation in the chassis:

The signal "D" (drive) will be added to the logic's in the signal "revolution control" in the chassis. The "D" (drive) signal arranges the switching in the programming of the revolution control.

For more information about the revolution control look in that paragraph.

2.1.3.6. Operating principle of "Loading while driving"

2.1.3.6.1. Scope

With this option it is possible to load faster with the lifting device, because the lifting can also be operated during driving.

As long as the vehicle stands still, it is possible to start a lifting cycle. This cycle will continue as soon as the vehicle starts driving away.

Normal operation:

Step	Condition	Action
1	The vehicle is put into a gear (no more Neutral).	Active lifting cycle is finished.
2	The vehicle is put into Reverse.	The lifting cycle is stopped.

2.1.3.6.2. Realisation in the chassis:

Signal "Reverse" is used for this option.

2.2. Condition for activating the body

2.2.1. Used components

<<<<Tabel met punten, wanneer belading, opbouw en persmechanisme wordt vrijgegeven.>>>>

EXHIBIT H

GEESINK NORBA GROUP

A N O S H K O S H C O M P A N Y

GEESINK**NORBA****KIGGEN**

Geesink B.V.

Betonweg 8

Postbus 52

8300 AB Emmeloord

Nederland

Telefoon 0527 638200

Task: Controlling the controls**Item:** Functional description GCB-split**Name:** Gert Meilink**Version:** 0.2**Date:****Page (s):** 14 van 38**2.5. Emergency circuit****2.5.1. Used components**

Type	Code	Description	Position	
Push button	S4	Emergency stop	cp-ET1	Standard
Push button	S5	Emergency stop	cp-ET2	Standard
Push button	S6	Emergency stop	cp-GCB1	GCB:
Push button	S7	Emergency stop	cp-GCB2	GCB:
Push button	S57	Emergency stop	cp-EGCB1	GCB:
Push button	S58	Emergency stop	cp-EGCB2	GCB:
Buzzer	B1	Buzzer	cp-MCB	Standard
Relay	K2	Emergency stop 1	CB	Standard
Relay	K3	Emergency stop 2	CB	Standard

2.5.2. Operating principle

After the emergency stop switches the circuit is made redundant.

By use of K2 and K3 the power supply is put on the hydraulic valves.

The emergency stop switches control directly K2 and K3 is controlled by the PLC.

The pneumatic valves are not controlled by K2 and K3 because this could result in unintentional movement of pneumatic operated parts.

The emergency stop circuit does not block the function of the "Release" button.

After activating an emergency switch an acoustic signal is given by the "Buzzer" in the cabin.

2.6. Access door in body (Option: GPM: 09-D)**2.6.1. Used components**

Type	Code	Description	Position	
Limit switch	Q58	Door is closed in body		GPM: 09-D

2.6.2. Operating principle

When the access door is opened the functions of the body are switched off by Q58.

2.7. Camera**2.7.1. Used components**

Type	Code	Description	Position	

Geesink B.V.
 Betonweg 8
 Postbus 52
 8300 AB Emmeloord
 Nederland
 Telefoon 0527 638200

Task: Controlling the controls
Item: Functional description GCB-split

Name: Gert Meilink
Version: 0.2
Date:
Page (s): 6 van 38

2.1.2.3. Speed > 10 km/h (from chassis)

2.1.2.3.1. Body:

This signal is used for the GCP (two-compartment) body and takes care that the scatter guard is closed when driving faster than 10 km/h, so damaging of the scatter guard is prevented.

When the vehicle drives faster than 10 km/h this signal becomes "high".

Not used for the GCB-split.

2.1.2.3.2. Chassis:

Signal "Speed > 10 km/h" comes from the tachograph.

This signal becomes "high" when the speed is larger than 10 km/h.

2.1.2.4. Parking brake signal (from chassis)

2.1.2.4.1. Body:

This signal is used for a body together with a crane loading device. This signal releases the revolution control. By use of this signal it is prevented that vehicle drives away, when the vehicle is not put on the parking brake.

2.1.2.4.2. Chassis:

This signal is provided by the parking brake.

The signal becomes "high" when the vehicle is put on the parking brake.

2.1.2.5. Drive signal (from chassis)

2.1.2.5.1. Body:

When the drive signal becomes "high" the controlling system ensures that the body and lifting device can not be started.

In case of a automatic gearbox, this signal prevents that the vehicle want to drive away when the "D" (drive) of the automatic gearbox is selected.

In case of a manual operated gearbox, this signal prevents that the driver wants/needs to drive away at a to high revolution number.

The chassis uses the signal for switching the revolution control from 1050 rpm to 800 rpm. For more information see the function compaction during driving.

2.1.2.5.2. Chassis in case of a automatic gearbox:

In this configuration the signal "D" (drive) is an combined signal of the signal "parking brake" and the "neutral" signal of the automatic gear box.

Signal "D" drive is "high" if:

- The automatic gear box is in Drive.
- The automatic gear box is in Neutral and the Parking brake is not activated.

Signal "D" drive is "low" if:

- The automatic gear box is in Neutral and the Parking brake is activated.

Geesink B.V.
 Betonweg 8
 Postbus 52
 8300 AB Emmeloord
 Nederland
 Telefoon 0527 638200

Task: Controlling the controls
Item: Functional description GCB-split

Name: Gert Meilink
Version: 0.2
Date:
Page (s): 9 van 38

When this signal is "high" the vehicle has to restrictions to make:

- Prevent driving faster than 30 km/h
- Shut down the engine when the vehicle is put into Reverse.

2.1.3. Operating principle body in combination with vehicle provisions

2.1.3.1. Normal operating principle

2.1.3.1.1. Scope

When the gearbox of the vehicle is not in its Neutral position all the functions on the body are blocked for operation. This is to prevent that the vehicle wants to drive away when a raised revs control is requested from the body.

2.1.3.1.2. Realisation in the chassis:

This function is realised by the vehicle by giving a "low" signal on the PTO / Neutral signal. The Drive signal is not used for these signals.

2.1.3.2. Operating principle of "Auto-neutral" function in case of a manual operated gearbox

2.1.3.2.1. Scope

The function "Auto-neutral" in combination with a manual operated gearbox can be used during the collection of refuse.

The driver of the vehicle needs only to apply the brake pedal and/or the clutch pedal without putting the gearbox into Neutral position, to allow the body any operation. During the collection of refuse the driver needs to keep the brake pedal and/or the clutch pedal activated.

~~Releasing the brake pedal and/or the clutch pedal results in stopping any operation of the body.~~

It is possible to add the function "Compacting during driving" to this option. For more information look in this paragraph.

2.1.3.2.2. Realisation in the chassis:

The Neutral signal of the combined signal PTO / Neutral is bridged.

The Drive signal is used by this function.

For more information look in this paragraph.

2.1.3.3. Operating principle of "Auto-neutral" function in case of a automatic gearbox

2.1.3.3.1. Scope

~~By this function~~ the automatic gearbox is put into the Neutral position when the brake pedal is applied by the driver.

As soon as the driving speed of the vehicle is lower then 5 km/h the gearbox is shifted into Neutral. When the Neutral position is reached the body is allowed to go into operation.

Geesink B.V.
 Betonweg 8
 Postbus 52
 8300 AB Emmeloord
 Nederland
 Telefoon 0527 638200

Task: Controlling the controls
Item: Functional description GCB-split

Name: Gert Meilink
Version: 0.2
Date:
Page (s): 11 van 38

To realise this option, the chassis needs to be ordered with a modification so that when the signal "Auto-neutral" is "high" the automatic gearbox is shifted into Neutral after the brake pedal is operated and the driving speed is lower than 5 km/h.

Additional to the "Auto-neutral" option it is needed that after releasing the brake pedal the automatic gearbox is shifted into Drive.

2.1.3.5. Operating principle of "Compacting during driving"

2.1.3.5.1. Scope

This option is only possible in combination with the functions "Auto-neutral" and "Stop & Go".

As soon as the vehicle starts driving, an already started compaction cycle will be completed. If the function start "continuous" is activated, it will stop after the compaction mechanism has finished its cycle.

Normal operation:

Step	Condition	Action
1	The vehicle is put into a gear (no more Neutral).	Active compaction cycle is finished.
2	Finished cycle.	Further operation of the body is not allowed.

2.1.3.5.2. Realisation in the chassis:

The signal "D" (drive) will be added to the logic's in the signal "revolution control" in the chassis. The "D" (drive) signal arranges the switching in the programming of the revolution control.

For more information about the revolution control look in that paragraph.

2.1.3.6. Operating principle of "Loading while driving"

2.1.3.6.1. Scope

With this option it is possible to load faster with the lifting device, because the lifting can also be operated during driving.

As long as the vehicle stands still, it is possible to start a lifting cycle. This cycle will continue as soon as the vehicle starts driving away.

Normal operation:

Step	Condition	Action
1	The vehicle is put into a gear (no more Neutral).	Active lifting cycle is finished.
2	The vehicle is put into Reverse.	The lifting cycle is stopped.

2.1.3.6.2. Realisation in the chassis:

Signal "Reverse" is used for this option.

2.2. Condition for activating the body

2.2.1. Used components

<<<<Tabel met punten, wanneer belading, opbouw en persmechanisme wordt vrijgegeven.>>>>

EXHIBIT L

Meier, Karen M.

Subject: APPROVED: NM013110 OSHKOSH TRUCK CORPORATION / US PAT
APP/INCORPORATION OF COMMAND ZONE INTO REFUSE VEHICLE WITH
EUROPEAN-STYLE SAFETY DEVICES

From: metastorm@foleylaw.com
Sent: Tuesday, March 04, 2003 11:54 AM
To: kmeier@foleylaw.com
Cc: dluttgen@foleylaw.com
Subject: APPROVED: NM013110 OSHKOSH TRUCK CORPORATION / US PAT
APP/INCORPORATION OF COMMAND ZONE INTO REFUSE VEHICLE WITH
EUROPEAN-STYLE SAFETY DEVICES

The referenced New Matter request has been approved. Please check your
watch list. The client matter number is: Client Name: OSHKOSH TRUCK
CORPORATION # 061300 Matter Name: US PAT APP/INCORPORATION OF COMMAND
ZONE INTO REFUSE VEHICLE WITH EUROPEAN-STYLE SAFETY DEVICES # 0364

____ JGM ____ DGL ____ SCNI

3/25/03

Kathy: Please docket as a disclosure.
TARGET FILING DATE: 5/30/03



EXHIBIT M

Atty. Dkt. No. 061300-0364

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Pillar et al.
Title: REFUSE VEHICLE CONTROL
SYSTEM AND METHOD
Appl. No.: 10/668,002
Filing Date: 09/22/2003
Examiner: Broadhead, Brian J.
Art Unit: 3661

CERTIFICATE OF EXPRESS MAILING	
I hereby certify that this correspondence is being deposited with the United States Postal Service's "Express Mail Post Office To Addressee" service under 37 C.F.R. § 1.10 on the date indicated below and is addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.	
(Express Mail Label Number)	(Date of Deposit)
(Printed Name)	
(Signature)	

DECLARATION UNDER 37 C.F.R. § 1.131

Commissioner for Patents
PO Box 1450
Alexandria, Virginia 22313-1450

Sir:

I, Scott C. Nielson, state and declare that:

1. I am currently employed as a patent attorney at Holland & Hart LLP in Salt Lake City, Utah.
2. While employed as a patent attorney at Foley & Lardner LLP, I drafted the above-referenced patent application.
3. Attached as Exhibit L is a Foley and Lardner patent application approval form dated March 4, 2003.
4. To the best of my recollection, the Foley and Lardner patent application approval form dated March 4, 2003 of Exhibit L was issued on the date that I was asked to prepare the above-referenced patent application.
5. The above-referenced patent application was one of four related patent applications I was assigned from this client during this timeframe. The client matter numbers for these applications were 61300-361, 61300-362, 61300-363 and 61300-364. The 61300-364 client matter number corresponds to patent application number 10/668,002.

6. At the time that I was assigned the patent application of Exhibit L, I had a backlog of patent applications, prosecution, and other work which I was working on.
7. I worked on the backlog in the time period of March 4, 2003 through June 18, 2003.
8. On June 19, 2003, I began work drafting the above-referenced patent application and worked on it regularly until I filed the patent application on September 22, 2003.
9. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are true, and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the patent application or any patent issuing therefrom.

Date: 28 March 2007

By: Scott C. Nielson
Scott C. Nielson

EXHIBIT N

Billed and Unbilled Time Detail for OSHKOSH TRUCK CORPORATION 061300-0364 US PAT APP/INCORPORATION OF COMMAND ZONE INTO

01/01/2003 through 12/31/2003

(sorted by matter, work date, timekeeper)

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<u>Timekeeper</u>	<u>Work Date</u>	<u>Bill Date</u>	<u>Hours</u>	<u>Dollars</u>	<u>Item Description</u>
Luetngen, David G.	02/10/2003	04/04/2003			Continue drafting memorandum regarding follow-up from Command Zone patent disclosure meeting.
Luetngen, David G.	02/11/2003	04/04/2003			Review and revise follow-up memorandum regarding Command Zone meeting.
Luetngen, David G.	02/12/2003	04/04/2003			Review and revise follow-up memorandum regarding Command Zone meeting.
Luetngen, David G.	02/21/2003	04/04/2003			Finalize follow-up memorandum from Command Zone meeting; forward same to Messrs. D. Pillar, B. Squires, N. Bjornstad, and W. Woolman for comments; consider follow-up comments regarding same.
Luetngen, David G.	03/04/2003	04/30/2003			Telephone conference with Mr. D. Pillar regarding application and request additional documents; leave follow-up voice mail with Mr. W. Woolman regarding same.
Nielson, Scott C.	03/04/2003	04/30/2003			Conference with Mr. D. Pillar and Mr. D. Luetngen to obtain more information in preparation for drafting patent application.
Luetngen, David G.	03/25/2003	04/30/2003			Meet with Mr. W. Woolman and other inventors to obtain additional disclosure.
Luetngen, David G.	05/08/2003	07/10/2003			Prepare summary of application; update Command Zone summary chart to reflect same; forward updated summary chart to Mr. B. Bauknecht per request (split entry).
Nielson, Scott C.	06/19/2003	08/25/2003			Review file.
Nielson, Scott C.	06/23/2003	08/25/2003			Draft patent application.
Nielson, Scott C.	06/24/2003	08/25/2003			Draft patent application.
Nielson, Scott C.	06/25/2003	08/25/2003			Draft patent application.
Nielson, Scott C.	06/26/2003	08/25/2003			Draft patent application.
Nielson, Scott C.	06/27/2003	08/25/2003			Draft patent application.
Luetngen, David G.	07/01/2003	09/30/2003			Conference with S. Nielson regarding Geesink prior art.
Nielson, Scott C.	07/01/2003	09/30/2003			Drafting patent application; telephone conversation with W. Woolman regarding patent application.
Luetngen, David G.	07/11/2003	09/30/2003			Conference with S. Nielson regarding Command Zone inventorship; e-mail to D. Pillar regarding same; review American Bioscience case regarding same (split charge).
Luetngen, David G.	07/15/2003	09/30/2003			Conference with S. Nielson regarding inventorship of Command Zone applications and American Bioscience case; review pending claims; prepare for telephone conference with D. Pillar (split charge).
Nielson, Scott C.	07/21/2003	09/30/2003			Drafting the patent application.
Nielson, Scott C.	07/24/2003	09/30/2003			Drafting patent application.
Luetngen, David G.	07/25/2003	09/30/2003			Telephone conference with C. Doughty regarding invention disclosure documents and other issues; follow-up e-mails to C. Doughty regarding same (split charge).
Nielson, Scott C.	07/25/2003	09/30/2003			Drafting patent application.
Luetngen, David G.	07/28/2003	09/30/2003			Review and revise first draft of application.

Nielson, Scott C.	07/28/2003	09/30/2003	Drafting the patent application.
Luetgten, David G.	07/29/2003	09/30/2003	Review and revise application; conference with S. Nielson regarding application.
Nielson, Scott C.	07/29/2003	09/30/2003	Conference with D. Luetgten regarding the first draft of patent application.
Luetgten, David G.	08/05/2003	11/19/2003	Review application and confer with Mr. S. Nielson regarding comments.
Nielson, Scott C.	08/05/2003	11/19/2003	Conference with Mr. D. Luetgten regarding the first draft of the patent application; revising the application to incorporate comments received from same.
Nielson, Scott C.	08/06/2003	11/19/2003	Revising the first draft of the application; conference with Mr. D. Luetgten regarding the first draft of the patent application; telephone call with Mr. W. Woolman regarding previous systems used by Geesink and Norba.
Luetgten, David G.	08/07/2003	11/19/2003	Confer with Mr. S. Nielson regarding prior art; telephone conference with Mr. D. Pillar regarding same; follow-up conference with Mr. S. Nielson.
Nielson, Scott C.	08/07/2003	11/19/2003	Conference with Mr. D. Luetgten regarding the prior art; revising the patent application.
Nielson, Scott C.	08/08/2003	11/19/2003	Revising the patent; formatting and preparing it to be sent to the inventors for review.
Nielson, Scott C.	09/02/2003	12/16/2003	Email correspondence with the inventors regarding their review of the patent application.
Nielson, Scott C.	09/10/2003	12/16/2003	Email correspondence with the inventors regarding their review of the patent application.
Nielson, Scott C.	09/16/2003	12/16/2003	Telephone call with Mr. W. Woolman regarding the review of the patent application.
Nielson, Scott C.	09/19/2003	12/16/2003	Preparing the patent application and formal papers to send to the inventors to review and execute.
Nielson, Scott C.	09/22/2003	12/16/2003	Reviewing the patent application before filing; preparing and reviewing documents to be filed with the patent application.
Nielson, Scott C.	09/23/2003	12/16/2003	Reviewing and executing a letter to Mr. B. Bauknecht reporting the filing of the patent application; email correspondence with Messrs. W. Woolman and D. Pillar regarding the duty of disclosure in prosecuting a patent application; review of the applicable law regarding the duty of disclosure; preparing request for formal drawings.
Nielson, Scott C.	09/24/2003	12/16/2003	Email correspondence with Mr. D. Luetgten regarding the filed patent application.
Morrow, James G.	09/25/2003	12/16/2003	Review correspondence regarding filing.
Nielson, Scott C.	10/09/2003	12/23/2003	Review formal drawings; telephone call to individual preparing the drawings to discuss changes; telephone call to Mr. W. Woolman regarding materials describing the refuse vehicle currently sold and used in Europe.
Nielson, Scott C.	10/10/2003	12/23/2003	Update file with revised formal drawings.
Luetgten, David G.	10/27/2003	12/23/2003	Review press release regarding rollout of commercial embodiment of invention; review information regarding SmartPack; e-mail to Mr. S. Nielson regarding same.
Nielson, Scott C.	10/27/2003	12/23/2003	Review materials announcing release of Geesink Norba's refuse vehicle equipped with Command Zone; e-mail correspondence with Mr. D. Luetgten regarding same.
Nielson, Scott C.	11/04/2003	01/08/2004	E-mail correspondence with Messrs. W. Woolman and D. Pillar regarding any documents that may need to be submitted as part of an Information Disclosure Statement.
Nielson, Scott C.	11/20/2003	01/08/2004	Review application status for Command Zone and Propulse applications; review and revise application status chart regarding recent developments; revise chart to include summaries of individual applications (Split Charge).
Luetgten, David G.	11/21/2003	01/08/2004	Review application status for Command Zone and Propulse applications; review and revise application status chart regarding recent developments; revise chart to include summaries of individual applications; forward revised chart to Messrs. G.

Total Time

Schmeidel and B. Bauknecht (Split Charge)

Billed and Unbilled Disbursement Detail for OSHKOSH TRUCK CORPORATION

061300-0364 US PAT APP/INCORPORATION OF COMMAND ZONE INTO

01/01/2003 through 12/31/2003

(sorted by matter, work date, timekeeper)

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Timekeeper	Work Date	Bill Date	Cost Code	Amount	Item Description
Nielson, Scott C.	03/04/2003	04/30/2003	33		13:01 03/04/03 920-235-9151 OSHKOSH WI
Nielson, Scott C.	03/04/2003	04/30/2003	33		12:53 03/04/03 920-236-6840 OSHKOSH WI
Luetgten, David G.	03/26/2003	04/30/2003	01		35 Copies.
Nielson, Scott C.	06/24/2003	08/25/2003	33		08:43 06/24/03 920-235-9151 OSHKOSH WI
Nielson, Scott C.	06/26/2003	08/25/2003	01		3 Copies.^
Nielson, Scott C.	06/26/2003	08/25/2003	01		1 Copies.^
Nielson, Scott C.	06/26/2003	08/25/2003	01		4 Copies.^
Nielson, Scott C.	07/28/2003	09/30/2003	01		12 Copies.^
Nielson, Scott C.	08/06/2003	11/19/2003	33		08:03 08/06/03 920-235-9150 OSHKOSH WI
Nielson, Scott C.	08/07/2003	11/19/2003	33		12:34 08/07/03 920-235-9150 OSHKOSH WI
Nielson, Scott C.	09/16/2003	12/16/2003	33		16:32 09/16/03 920-235-9151 OSHKOSH WI
Luetgten, David G.	09/22/2003	12/16/2003	M23		Check Number: 12991 NON-PROV PATENT APPLICATION FILING FEE
Nielson, Scott C.	09/22/2003	12/16/2003	01		207 Copies.^
Nielson, Scott C.	09/22/2003	12/16/2003	31		U.S. Express
Nielson, Scott C.	10/09/2003	12/23/2003	33		10:54 10/09/03 920-235-9151 OSHKOSH WI
Nielson, Scott C.	10/29/2003	01/08/2004	59		Patent Drawings -- VENDOR:DAVID HENDRICKSON, INC. -- SCNI -- 10 SHEETS FORMAL DRAWINGS
Nielson, Scott C.	11/17/2003	01/08/2004	01		2 Copies.^
Total Disbursements					

GRAND TOTAL

EXHIBIT O

Document #1,447,005

User	Applicati...	Activity	Date - Time	Duration	Pages Prin...	Location	Comments
09957	MANAGE32	View	3/26/2007 8:57:19 AM	0:00	0	XP-L3F5692	
09211	MANAGE32	View	10/10/2006 10:13:54	0:00	0	XP-L3F4624	
09957	MANAGE32	Mail	9/27/2006 11:23:24 A	0:00	0	XP-L3F5692	
09957	MANAGE32	View	9/27/2006 11:23:18 A	0:00	0	XP-L3F5692	
09957	MANAGE32	View	8/17/2006 8:33:33 AM	0:00	0	XP-L3F5692	
09526	MANAGE32	View	1/26/2006 2:36:09 PM	0:00	0	XP-99LA5R6	
DPETERO	MANAGE32	View	9/29/2005 6:52:00 AM	0:00	0	XP-FHDZL51	
SNIELSON	DeltaView	View	9/23/2005 8:55:14 AM	0:00	0	Location	Read by DeltaView
SNIELSON	WINWORD	Checkin	9/23/2005 8:54:26 AM	0:0:25	0	XP-995NZ24	
SNIELSON	MANAGE32	Checkout	9/23/2005 8:54:01 AM	0:00	0	XP-995NZ24	
SNIELSON	WINWORD	Checkin	6/15/2005 8:26:57 AM	0:10:38	0	XP-995NZ24	
SNIELSON	MANAGE32	Checkout	6/15/2005 8:16:19 AM	0:00	0	XP-995NZ24	
SNIELSON	WINWORD	Checkin	2/18/2005 5:23:43 AM	0:39:11	0	XP-995NZ24	
SNIELSON	MANAGE32	Checkout	2/18/2005 4:44:32 AM	0:00	0	XP-995NZ24	
SMIKSA	WINWORD	Checkin	9/22/2004 4:55:51 AM	0:7:24	0	XP-99HT588	
SMIKSA	WINWORD	Checkout	9/22/2004 4:48:27 AM	0:00	0	XP-99HT588	
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FLECLAIR	WINWORD	View	1/21/2004 6:17:40 AM	0:00	0	XP-6X19FHG	
SNIELSON	MANAGE32	View	1/8/2004 9:29:30 AM	0:00	0	XP-78A9WN	
DUETTGE	WINWORD	Checkin	11/21/2003 5:42:47 A	0:06	0	XP-78KVNAT	
DUETTGE	WINWORD	Checkout	11/21/2003 6:42:41 A	0:00	0	XP-78KVNAT	
DUETTGE	WINWORD	Checkin	10/22/2003 10:34:19	0:0:15	0	XP-78KVNAT	
DUETTGE	WINWORD	Checkout	10/22/2003 10:34:04	0:00	0	XP-78KVNAT	
CRANIS	WINWORD	Checkin	9/24/2003 6:10:50 AM	0:0:40	0	XP-U207JYH	
CRANIS	WINWORD	Print	9/24/2003 6:10:45 AM	0:00	46	XP-U207JYH	
CRANIS	MANAGE32	Checkout	9/24/2003 6:10:10 AM	0:00	0	XP-U207JYH	
CRANIS	MANAGE32	View	9/24/2003 6:10:08 AM	0:00	0	XP-U207JYH	
CRANIS	MANAGE32	View	9/23/2003 11:20:29 A	0:00	0	XP-U207JYH	
SNIELSON	WINWORD	Checkin	9/22/2003 9:50:55 AM	0:26:40	0	XP-78A9WN	
SNIELSON	MANAGE32	Checkout	9/22/2003 9:24:15 AM	0:00	0	XP-78A9WN	
CRANIS	WINWORD	Checkin	9/22/2003 8:06:36 AM	0:13:29	0	XP-U207JYH	
CRANIS	WINWORD	Modify	9/22/2003 8:06:35 AM	0:00	0	XP-U207JYH	
CRANIS	WINWORD	Print	9/22/2003 7:54:45 AM	0:00	46	XP-U207JYH	
CRANIS	MANAGE32	Checkout	9/22/2003 7:53:07 AM	0:00	0	XP-U207JYH	

User	Applicati...	Activity	Date - Time	Duration	Pages Prin...	Location	Comments
CRANIS	WINWORD	Checkin	9/22/2003 6:04:40 AM	0:5:44	0	XP-U207 JYH	
CRANIS	WINWORD	Print	9/22/2003 6:00:17 AM	0:0:0	46	XP-U207 JYH	
CRANIS	WINWORD	Print	9/22/2003 5:59:49 AM	0:0:0	46	XP-U207 JYH	
CRANIS	MANAGE32	Checkout	9/22/2003 5:58:56 AM	0:0:0	0	XP-U207 JYH	
SNIELSON	WINWORD	Checkin	9/19/2003 8:45:19 AM	0:18:21	0	XP-78A9WN	
SNIELSON	WINWORD	Print	9/19/2003 8:44:01 AM	0:0:0	46	XP-78A9WN	
SNIELSON	WINWORD	Print	9/19/2003 8:43:50 AM	0:0:0	46	XP-78A9WN	
SNIELSON	MANAGE32	Checkout	9/19/2003 8:26:58 AM	0:0:0	0	XP-78A9WN	
SNIELSON	WINWORD	Checkin	9/2/2003 8:01:39 AM	0:0:14	0	XP-78A9WN	
SNIELSON	MANAGE32	Checkout	9/2/2003 8:01:25 AM	0:0:0	0	XP-78A9WN	
SNIELSON	WINWORD	Checkin	8/8/2003 4:10:45 AM	2:26:36	0	XP-78A9WN	
SNIELSON	WINWORD	Modify	8/8/2003 4:10:44 AM	0:0:0	0	XP-78A9WN	
SNIELSON	WINWORD	Print	8/8/2003 3:59:12 AM	0:0:0	46	XP-78A9WN	
SNIELSON	WINWORD	Print	8/8/2003 3:59:02 AM	0:0:0	46	XP-78A9WN	
SNIELSON	WINWORD	Print	8/8/2003 2:45:17 AM	0:0:0	1	XP-78A9WN	
SNIELSON	MANAGE32	Checkout	8/8/2003 1:44:09 AM	0:0:0	0	XP-78A9WN	
SNIELSON	WINWORD	Checkin	8/7/2003 11:15:21 AM	0:22:21	0	XP-78A9WN	
SNIELSON	WINWORD	Modify	8/7/2003 11:15:20 AM	0:0:0	0	XP-78A9WN	
SNIELSON	MANAGE32	Checkout	8/7/2003 10:53:00 AM	0:0:0	0	XP-78A9WN	
SNIELSON	MANAGE32	Changed P	8/7/2003 10:52:57 AM	0:0:0	0	XP-78A9WN	
SNIELSON	WINWORD	Checkin	8/6/2003 4:55:50 AM	3:6:48	0	XP-78A9WN	
SNIELSON	WINWORD	Modify	8/6/2003 4:55:49 AM	0:0:0	0	XP-78A9WN	
SNIELSON	MANAGE32	Checkout	8/6/2003 1:49:02 AM	0:0:0	0	XP-78A9WN	
SNIELSON	MANAGE32	Checkin	8/5/2003 6:01:15 PM	3:43:53	0	10.51.1.13	
SNIELSON	WORD97	Print	8/5/2003 3:22:09 PM	0:0:0	1	10.51.1.13	
SNIELSON	MANAGE32	Open	8/5/2003 2:17:22 PM	0:0:0	0	10.51.1.13	
SNIELSON	WINWORD	Checkin	8/5/2003 10:00:41 AM	0:0:18	0	XP-78A9WN	
SNIELSON	MANAGE32	Checkout	8/5/2003 10:00:23 AM	0:0:0	0	XP-78A9WN	
SNIELSON	WINWORD	Checkin	8/5/2003 10:00:18 AM	0:0:18	0	XP-78A9WN	
SNIELSON	MANAGE32	Checkout	8/5/2003 10:00:00 AM	0:0:0	0	XP-78A9WN	
SNIELSON	WINWORD	Checkin	8/5/2003 2:46:20 AM	0:0:11	0	XP-78A9WN	
SNIELSON	MANAGE32	Checkout	8/5/2003 2:46:09 AM	0:0:0	0	XP-78A9WN	
SNIELSON	WINWORD	Checkin	7/31/2003 4:37:53 AM	0:0:50	0	XP-78A9WN	
SNIELSON	WINWORD	Modify	7/31/2003 4:37:52 AM	0:0:0	0	XP-78A9WN	

User	Applicati...	Activity	Date - Time	Duration	Pages Prin...	Location	Comments
SNIELSON	MANAGE32	Checkout	7/31/2003 4:37:03 AM	0:0:0	0	XP-78A9WN	
SNIELSON	WINWORD	Checkin	7/30/2003 4:08:11 AM	0:19:32	0	XP-78A9WN	
SNIELSON	WINWORD	Modify	7/30/2003 4:08:10 AM	0:0:0	0	XP-78A9WN	
SNIELSON	MANAGE32	Checkout	7/30/2003 3:48:39 AM	0:0:0	0	XP-78A9WN	
SNIELSON	WINWORD	Checkin	7/30/2003 2:10:32 AM	0:4:21	0	XP-78A9WN	
SNIELSON	MANAGE32	Checkout	7/30/2003 2:06:11 AM	0:0:0	0	XP-78A9WN	
DUETTGE	WINWORD	Checkin	7/29/2003 5:35:21 AM	0:0:26	0	XP-78KVNAT	
DUETTGE	WINWORD	Mail	7/29/2003 5:35:04 AM	0:0:0	0	XP-78KVNAT	
DUETTGE	WINWORD	Checkout	7/29/2003 5:34:55 AM	0:0:0	0	XP-78KVNAT	
SNIELSON	WINWORD	Checkin	7/28/2003 8:46:06 AM	8:46:48	0	XP-78A9WN	
SNIELSON	WINWORD	Modify	7/28/2003 8:46:06 AM	0:0:0	0	XP-78A9WN	
SNIELSON	WINWORD	Print	7/28/2003 7:43:02 AM	0:0:0	39	XP-78A9WN	
SNIELSON	WINWORD	Print	7/28/2003 6:18:52 AM	0:0:0	37	XP-78A9WN	
SNIELSON	MANAGE32	Checkout	7/27/2003 11:59:18 P	0:0:0	0	XP-78A9WN	
SNIELSON	WINWORD	Checkin	7/25/2003 10:52:20 A	3:48:2	0	XP-78A9WN	
SNIELSON	WINWORD	Modify	7/25/2003 10:52:19 A	0:0:0	0	XP-78A9WN	
SNIELSON	MANAGE32	Checkout	7/25/2003 7:04:18 AM	0:0:0	0	XP-78A9WN	
SNIELSON	WINWORD	Checkin	7/25/2003 5:48:02 AM	0:22:46	0	XP-78A9WN	
SNIELSON	WINWORD	Modify	7/25/2003 5:48:01 AM	0:0:0	0	XP-78A9WN	
SNIELSON	MANAGE32	Checkout	7/25/2003 5:25:16 AM	0:0:0	0	XP-78A9WN	
SNIELSON	MANAGE32	Checkin	7/25/2003 4:10:55 AM	1:1:16	0	10.51.1.12	
SNIELSON	MANAGE32	Open	7/25/2003 3:09:39 AM	0:0:0	0	10.51.1.12	
SNIELSON	WINWORD	Checkin	7/24/2003 11:19:09 A	6:56:24	0	XP-78A9WN	
SNIELSON	WINWORD	Modify	7/24/2003 11:19:08 A	0:0:0	0	XP-78A9WN	
SNIELSON	WINWORD	Print	7/24/2003 6:12:03 AM	0:0:0	10	XP-78A9WN	
SNIELSON	WINWORD	Print	7/24/2003 6:11:43 AM	0:0:0	23	XP-78A9WN	
SNIELSON	WINWORD	Print	7/24/2003 4:28:54 AM	0:0:0	8	XP-78A9WN	
SNIELSON	MANAGE32	Checkout	7/24/2003 4:22:45 AM	0:0:0	0	XP-78A9WN	
SNIELSON	WINWORD	Checkin	7/21/2003 12:03:43 P	6:55:36	0	XP-78A9WN	
SNIELSON	WINWORD	Modify	7/21/2003 12:03:41 P	0:0:0	0	XP-78A9WN	
SNIELSON	WINWORD	Print	7/21/2003 5:15:45 AM	0:0:0	21	XP-78A9WN	
SNIELSON	MANAGE32	Checkout	7/21/2003 5:08:07 AM	0:0:0	0	XP-78A9WN	
NSTCLAIR	MANAGE32	View	7/1/2003 11:05:51 AM	0:0:0	0	XP-99HT036	
NSTCLAIR	MANAGE32	View	7/1/2003 11:03:18 AM	0:0:0	0	XP-99HT036	

User	Applicati...	Activity	Date - Time	Duration	Pages Prin...	Location	Comments
NSTCLAIR	WINWORD	Close	7/1/2003 11:00:09 AM	0:0:0	0	XP-99HT036	
SNIELSON	MANAGE32	Checkin	7/1/2003 6:41:52 AM	3:36:28	0	10.50.33.76	
NSTCLAIR	MANAGE32	View	7/1/2003 4:05:57 AM	0:0:0	0	XP-99HT036	
NSTCLAIR	MANAGE32	View	7/1/2003 4:05:14 AM	0:0:0	0	XP-99HT036	
SNIELSON	MANAGE32	Open	7/1/2003 3:05:24 AM	0:0:0	0	10.50.33.76	
SNIELSON	MANAGE32	Checkin	6/27/2003 6:54:35 AM	1:15:6	0	10.50.33.71	
SNIELSON	MANAGE32	Open	6/27/2003 5:39:29 AM	0:0:0	0	10.50.33.71	
SNIELSON	MANAGE32	Checkin	6/26/2003 11:17:59 A	8:56:24	0	10.50.33.71	
SNIELSON	WORD97	Print	6/26/2003 3:39:02 AM	0:0:0	6	10.50.33.71	
SNIELSON	MANAGE32	Open	6/26/2003 2:21:35 AM	0:0:0	0	10.50.33.71	
SNIELSON	MANAGE32	Checkin	6/25/2003 11:39:47 A	1:21:18	0	10.50.33.71	
SNIELSON	WORD97	Create Ver	6/25/2003 10:18:30 A	0:0:0	0	10.50.33.71	
SNIELSON	MANAGE32	Checkout	6/25/2003 10:18:29 A	0:0:0	0	10.50.33.71	
SNIELSON	MANAGE32	Create Ver	6/25/2003 10:18:29 A	0:0:0	0	10.50.33.71	

EXHIBIT Q

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User	Applicati...	Activity	Date - Time	Duration	Pages Prin...	Location	Comments
09957	MANAGE32	View	3/26/2007 9:00:30 AM	0:0:0	0	XP-L3F5692	
CRAINIS	MANAGE32	View	9/23/2003 11:20:30 AM	0:0:0	0	XP-U207JYH	
CRAINIS	WINWORD	Checkin	9/22/2003 8:09:31 AM	0:0:18	0	XP-U207JYH	
CRAINIS	WINWORD	Print	9/22/2003 8:09:24 AM	0:0:0	1	XP-U207JYH	
CRAINIS	MANAGE32	Checkout	9/22/2003 8:09:13 AM	0:0:0	0	XP-U207JYH	
CRAINIS	MANAGE32	Checkin	4/22/2003 9:41:46 AM	0:0:18	0	10:50:33:19	
CRAINIS	MANAGE32	Open	4/22/2003 9:41:28 AM	0:0:0	0	10:50:33:19	
CRAINIS	MANAGE32	Create	4/22/2003 9:41:27 AM	0:0:0	0	10:50:33:19	

EXHIBIT R

No	I/O	Description	No	I/O	Description	No	I/O	Description
ID1 CAB			ID2 CAB			ID3 CAB		
1	DI	Emergency stop High sig	1	AI		1	DO K	LED 4, Unloading mode
2	DI	Emergency stop Low sig	2	AI		2	DO K	LED 5 F1, Bodyfunctions
3	DI	Gear box / Brake OK	3	AI		3	DO K	LED 6 F2, Quiet
4	DI/FI		4	AI		4	DO K	LED * Cleaning/Compaction
5	DI/DO	Footstep ok	5	AI		5	DO K	LED # R.H drive
6	DI/DO	Footstep max 30km/h	6	AI		6	DO K	LED Alarm
7	DI/DO	Revs. control	7	AI		7	DO K	Buzzer
8	DI/DO	Power take off / Pump	8	AI		8	DO K	LED Background light

No	I/O	Description	No	I/O	Description	No	I/O	Description
ID4 CAB			ID5 CAB			ID6 CAB		
1	AI	Counter Liftstart L	1	AO	Startup flag	1	DI TK	On/Off
2	AI	Counter Shakings A	2	AO	Buttons reset	2	DI TK	Beacon
3	AI	Counter Shakings B	3	AO	Joke speed	3	DI TK	Work light
4	AI	Counter 4	4	AO	Packer plate speed	4	DI TK	Unloading mode
5	AI	Counter 5	5	AO	Lock start compaction	5	DI TK	F1; bodyfunctions from cab
6	AI	Counter 6	6	AO	Buttons OK body	6	DI TK	F2; quiet
7	AI	Backpressure A	7	AO		7	DI TK	Cleaning
8	AI		8	AO		8	DI TK	R.H drive

No	I/O	Description	No	I/O	Description	No	I/O	Description
ID8 BODY L.H			ID9 BODY L.H			ID10 BODY L.H		
1	DI	Emergency stop High	1 (9)	DI		1	AI	Oil level
2	DI	Em.stop Low/Insp.door Le	2 (10)	DI		2	AI	Oil temp.
3	DI	Em.stop Low/Insp.door Ri	3 (11)	DI		3	AI	
4	DI		4 (12)	DI		4	AI	
5	DI	Cleaning	5 (13)	DI/DO		5	AI	Ejectionplate in/out
6	DI	Tailgate up	6 (14)	DI/DO		6	AI	
7	DI	Tailgate down 1	7 (15)	DI/DO		7	AI	
8	DI	Tailgate down 2	8 (16)	DI/DO		8	AI	

No	I/O	Description	No	I/O	Description	No	I/O	Description
ID11 TAILGATE L.H			ID12 TAILGATE L.H			ID13 TAILGATE L.H		
1	DI	Emergency stop High sig	1 (9)	DI		1	AI	
2	DI	Emergency stop Low sig	2 (10)	DI		2	AI	
3	DI		3 (11)	DI		3	AI	
4	DI	Signal	4 (12)	DI		4	AI	
5	DI	Start	5 (13)	DI/DO		5	AI	
6	DI		6 (14)	DI/DO		6	AI	
7	DI		7 (15)	DI/DO		7	AI	
8	DI	Tailgate closed Left	8 (16)	DI/DO		8	AI	

No	I/O	Description	ID14	TAILGATE R.H	No	I/O	Description	ID15	TAILGATE R.H	No	I/O	Description	ID16	TAILGATE R.H	Description
1	DI	Emergency stop High sig	1 (9)	DI	1	DI	Footstep High signal	1	DI	1	AI				
2	DI	Emergency stop Low sig	2 (10)	DI	2	AI	Footstep Low signal	2	AI	2	AI				
3	DI	Rescue	3 (11)	DI	3	AI		3 (11)	DI	3	AI				
4	DI	Signal	4 (12)	DI	4	AI		4 (12)	DI	4	AI				
5	DI	Start	5 (13)	DI/DO	5	AI		5 (13)	DI/DO	5	AI				
6	DI		6 (14)	DI/DO	6	AI		6 (14)	DI/DO	6	AI				
7	DI	Ravebar closed	7 (15)	DI/DO	7	AI		7 (15)	DI/DO	7	AI				
8	DI	Tailgate closed Right	8 (16)	DI/DO	8	AI		8 (16)	DI/DO	8	AI				

ID17		Description		No	I/O	ID18		Description		No	I/O	ID19		Description	
CONTROL BOX						CONTROL BOX						CONTROL BOX		CONTROL BOX	
1	A1/R1	Radio		1	DO	Emergency stop	High sig	1	DO						
2	A1/R1	Radio		2	DO	Emergency stop	Low sig	2	DO						
3	A1/R1	Radio		3	DO			3	DO						
4	A1/R1	Radio		4	DO	Buzzer reverse direction		4	DO						
5	A1/R1	Radio		5	DO	Work light		5	DO						
6	A1/R1	Radio		6	DO	Beacon		6	DO						
7	A1/R1	Radio		7	DO	Work light	Reverse	7	DO						
8	A1/R1	Radio		8	DO			8	DO						

ID20			ID21			ID22			ID23		
No	I/O	Description	No	I/O	Description	No	I/O	Description	No	I/O	Description
CONTROL_BOX			CONTROL_BOX			CONTROL_BOX			CONTROL_BOX		
1	DI	Tilt	1	AI		1+	PWM		1+	PWM	Ejection plate out
2	DI	Emergency stop OK	2	AI		1-	PWM		1-	PWM	Ejection plate in
3	DI	Emergency stop L HLL	3	AI	Joke pos. up	2+	PWM	HLL constant oil flow	2+	PWM	Tailgate up
4	DI	Reverse signal	4	AI	Packer plate pos. out	2-	PWM	-	2-	PWM	Tailgate down
5	DI	Start HLL	5	AI	Pressure sensor	3+	PWM		3+	PWM	Joke down
6	DI	Check HLL is on	6	AI	Packer plate pos.(auto)	3-	PWM		3-	PWM	Joke up
7	DI	Revs. control HLL	7	AI	Joke pos.down	4+	PWM		4+	PWM	Packer plate in
8	DI	Oil request HLL	8	AI	Packer plate pos. in	4-	PWM		4-	PWM	Packer plate out

[illegible]

No	I/O	Description	No	I/O	Description	No	I/O	Description
ID1		CAB	ID2		CAB	ID3		CAB
1	DI	Emergency stop High sig	1	AI		1	DO K	LED 4, Unloading mode
2	DI	Emergency stop Low sig	2	AI		2	DO K	LED 5 F1, Bodyfunctions
3	DI	Gear box / Brake OK	3	AI		3	DO K	LED 6 F2, Quiet
4	DI/DO		4	AI		4	DO K	LED * Cleaning/Compaction
5	DI/DO	Footstep ok	5	AI		5	DO K	LED # R.H drive
6	DI/DO	Footstep max 30km/h	6	AI		6	DO K	LED Alarm
7	DI/DO	Revs. control	7	AI	Tailgate speed	7	DO K	Buzzer
8	DI/DO	Power take off / Pump	8	AI	Eject comp speed	8	DO K	LED Background light

No	I/O	Description	No	I/O	Description	No	I/O	Description
ID4		CAB	ID5		CAB	ID6		CAB
1	AI	Counter Liftstart L	1	AO	Startup flag	1	DI TK	On/Off
2	AI	Counter Shakings A	2	AO	Buttons reset	2	DI TK	Beacon
3	AI	Counter Shakings B	3	AO	Joke speed	3	DI TK	Work light
4	AI	Counter 4	4	AO	Packer plate speed	4	DI TK	Unloading mode
5	AI	Counter 5	5	AO	Lock start compaction	5	DI TK	F1; bodyfunctions from cab
6	AI	Counter 6	6	AO	Buttons OK body	6	DI TK	F2; quiet
7	AI	Backpressure A	7	AO		7	DI TK	Cleaning
8	AI		8	AO		8	DI TK	R.H drive

No	I/O	Description	No	I/O	Description	No	I/O	Description
ID8		BODY LH	ID9		BODY LH	ID10		BODY LH
1	DI	Emergency stop High	1 (9)	DI		1	AI	Oil level
2	DI	Em.stop Low/Insp door Left	2 (10)	DI		2	AI	Oil temp.
3	DI	Em.stop Low/Insp door Right	3 (11)	DI		3	AI	
4	DI		4 (12)	DI		4	AI	
5	DI	Cleaning	5 (13)	DI/DO		5	AI	Ejectionplate in/out
6	DI	Tailgate up	6 (14)	DI/DO		6	AI	
7	DI	Tailgate down 1	7 (15)	DI/DO		7	AI	
8	DI	Tailgate down 2	8 (16)	DI/DO	Tailgate open L	8	AI	

No	I/O	Description	No	I/O	Description	No	I/O	Description
ID11		TAILGATE LH	ID12		TAILGATE LH	ID13		TAILGATE LH
1	DI	Emergency stop High sig	1 (9)	DI	Footstep High signal	1	AI	
2	DI	Emergency stop Low sig	2 (10)	DI	Footstep Low signal	2	AI	
3	DI		3 (11)	DI	Binlift up	3	AI	
4	DI	Signal	4 (12)	DI	Binlift down	4	AI	
5	DI	Start	5 (13)	DI/DO	Footstep in position	5	AI	
6	DI		6 (14)	DI/DO		6	AI	
7	DI		7 (15)	DI/DO	DIN arm	7	AI	
8	DI	Tailgate closed Left	8 (16)	DI/DO		8	AI	

No	I/O	Description	No	I/O	Description	No	I/O	Description
ID1 CAB			ID2 CAB			ID3 CAB		
1	DI	Emergency stop High sig	1	AI		1	DO K	LED 4. Unloading mode
2	DI	Emergency stop Low sig	2	AI		2	DO K	LED 5 F1, Bodyfunctions
3	DI	Gear box / Brake OK	3	AI		3	DO K	LED 6 F2, Quiet
4	DI/DO		4	AI		4	DO K	LED * Cleaning/Compaction
5	DI/DO	Footstep ok	5	AI		5	DO K	LED # R.H drive
6	DI/DO	Footstep max 30km/h	6	AI		6	DO K	LED Alarm
7	DI/DO	Revs. control	7	AI	Tailgate speed	7	DO K	Buzzer
8	DI/DO	Power take off / Pump	8	AI	Eject comp speed	8	DO K	LED Background light

No	I/O	Description	No	I/O	Description	No	I/O	Description
ID4 CAB			ID5 CAB			ID6 CAB		
1	AI	Counter Cyclesstart	1	AO	Autodevel L	1	DI TK	On/Off
2	AI	Counter Shakings A	2	AO	Autodevel R	2	DI TK	Beacon
3	AI	Counter Shakings B	3	AO	Any arm out	3	DI TK	Work light
4	AI	Counter 4	4	AO	Bin silt on L	4	DI TK	Unloading mode
5	AI	Counter 5	5	AO	Bin silt on R	5	DI TK	F1: bodyfunctions from cab
6	AI	Counter 6	6	AO	Auto interrupt L	6	DI TK	F2: quiet
7	AI	Backpressure A	7	AO	Auto interrupt R	7	DI TK	Cleaning
8	AI		8	AO		8	DI TK	R.H drive

No	I/O	Description	No	I/O	Description	No	I/O	Description
ID8 BODY LH			ID9 BODY LH			ID10 BODY LH		
1	DI	Emergency stop High	1 (9)	DI		1	AI	Oil level
2	DI	Em.stop Low/Insp.door Le	2 (10)	DI		2	AI	Oil temp.
3	DI	Em.stop Low/Insp.door Ri	3 (11)	DI		3	AI	
4	DI		4 (12)	DI		4	AI	
5	DI	Cleaning	5 (13)	DI/DO		5	AI	Ejectionplate in/out
6	DI	Tailgate up	6 (14)	DI/DO		6	AI	
7	DI	Tailgate down 1	7 (15)	DI/DO		7	AI	
8	DI	Tailgate down 2	8 (16)	DI/DO	Tailgate open L	8	AI	

No	I/O	Description	No	I/O	Description	No	I/O	Description
ID11 TAILGATE LH			ID12 TAILGATE LH			ID13 TAILGATE LH		
1	DI	Emergency stop High sig	1 (9)	DI	Footstep High signal	1	AI	Binlift Up/Down Left
2	DI	Emergency stop Low sig	2 (10)	DI	Footstep Low signal	2	AI	
3	DI		3 (11)	DI	Safety arm Left	3	AI	
4	DI	Signal	4 (12)	DI	Bin OK	4	AI	
5	DI	Start	5 (13)	DI/DO	Handle binlift	5	AI	
6	DI	Autogrip	6 (14)	DI/DO	GE arm small	6	AI	Binlim Locking OK
7	DI	Double lift Locked	7 (15)	DI/DO	GE arm large	7	AI	
8	DI	Tailgate closed Left	8 (16)	DI/DO	DIN arm	8	AI	

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Set 1

Cable list GEESINK GPM-III

Revision: 0

Cable no.	Symbol	Name	Cable type
1.2	Y1-Y2	Ejection plate Out / In	Valve cable prop.
3.4	Y3-Y4	Tailgate Up / Down	Valve cable prop.
5.6	Y5-Y6	Joke Down / Up	Valve cable prop.
7.8	Y7-Y8	Packer plate Out / In	Valve cable prop.
9	Y9		Valve cable prop.
10	Y10		Valve cable prop.
11	Y11		Valve cable prop.
12	Y12		Valve cable prop.
13	Y13		Valve cable prop.
14	Y14		Valve cable prop.
15	Y15		Valve cable prop.
16	Y16		Valve cable prop.
17	Y17	Locking tailgate big MF300	Valve cable prop.
18	Y18	Unlocking tailgate big MF300	Valve cable prop.
19	Y19		Valve cable prop.
20	Y20		Valve cable prop.
21	Y21		Valve cable prop.
22	Y22		Valve cable prop.
23	Y23		Valve cable prop.
24	Y24		Valve cable prop.
25	Y25		Valve cable prop.
26	Y26		Valve cable prop.
27	Y27		Valve cable prop.
28	Y28		Valve cable prop.
29	Y29		
30	Y30		
31	Y31		
32	Y32		Valve cable
33	Y33		Valve cable
34	Y34		Valve cable
35	Y35		Valve cable
36	Y36		Valve cable
37	Y37		Valve cable
38	Y38		Valve cable
39	Y39		Valve cable
40	Y40	Bincatcher middle (big)	Valve cable
41	Y41	Bincatcher out (big)	Valve cable
42	Y42	Bin catcher in (big)	Valve cable
43	Y43	Bin locking on (big)	Valve cable
44	Y44	Bin locking off (big)	Valve cable
45	Y45	Bin locking on (small)	Valve cable
46	Y46	Bin locking off (small)	Valve cable
47	Y47	Bin catcher out (small)	Valve cable
48	Y48	Bin catcher in (small)	Valve cable
49	Y49		Valve cable
50	Y50	On/Off (Dumpvalve)	Valve cable
		BIG FRACTION L.H	

51	T1	Pressure sensor	Analogous prox. switch cable
52			
53	G1(a)	Carriage plate position (up)	Analogous prox. switch cable
54	G1(b)	Carriage plate position (down)	
55	G2	Packer plate position (out)	Analogous prox. switch cable
56	G3	Packer plate position (in)	
57	G4	Packer plate position (auto)	
58	G6		
59	G7		
60	G8	HLL Door (closed)	Safety sensor
	G5	Tilt, Tailgate open	Internal
		SMALL FRACTION R.H	
61	T11	Pressure sensor (small)	Analogous prox. switch cable
62			
63	G11(a)	Carriage plate position (up)	Analogous prox. switch cable
64	G11(b)	Carriage plate position (down)	
65	G12	Packer plate position (out)	Analogous prox. switch cable
66	G13	Packer plate position (in)	
67	G14	Packer plate position (auto)	
68	G16		
69	G17		
70	G18		
	G15	Tilt, Tailgate open	Internal
		CONTROL BOX BIG L.H	
71	G21	Container sensor	Prox. Switch cable
72	G22(a)	Spillage panel	Prox. Switch cable
73	G23(a)	Footstep	Prox. Switch cable
74	G24(a)	Tailgate closed (locking crow)	Prox. Switch cable
75	G25(a)		
76	G26(a)	Auto. bin catcher	Prox. Switch cable
77	G27(a)	Bin locking	Prox. Switch cable
78	G28	Barrier down	Prox. Switch cable
79	G29	DIN-arm position	Prox. Switch cable
80	G30	Lift position	Prox. Switch cable
		CONTROL BOX SMALL R.H	
81	G31	Container sensor	Prox. Switch cable
82	G32(a)	Spillage panel	Prox. Switch cable
83	G33(a)	Footstep	Prox. Switch cable
84	G34(a)	Tailgate closed (locking crow)	Prox. Switch cable
85	G35(a)		
86	G36(a)	Auto. bin catcher	Prox. Switch cable
87	G37(a)	Bin locking	Prox. Switch cable
88	G38	Barrier down	Prox. Switch cable
89	G39	DIN-arm position	Prox. Switch cable
90	G40	Lift position	Prox. Switch cable
		CONTROL BOX BODY	
91	G41	Inspection door L.H	Prox. Switch cable
92	G42	Inspection door R.H	Prox. Switch cable
93	G43	Level sensor	Prox. Switch cable
94	G44	Temp. Sensor	Prox. Switch cable
95	G45		
96	G46		

97	G47		
98	G48		
99	G49		
100	C1	Supervision camera CCTV	Camera cable
		LIGHTING ELECTRIC BOXES	
101		Number plate light L.H	Ölflex 2x1
102		Number plate light R.H	Ölflex 2x1
103		Beacon L.H	Ölflex 2x1
104		Beacon R.H/Small	Ölflex 2x1
105		Work light L.H	Ölflex 2x1
106		Work light R.H	Ölflex 2x1
107		Work light Extra L.H/Small	Ölflex 2x1
108		Work light Extra R.H/Small	Ölflex 2x1
109		Work light Extra L.H/External	Ölflex 2x1
110		Work light Extra R.H/External	Ölflex 2x1
200		Flash light R.H	Ölflex 2x1
201		Flash light L.H	Ölflex 2x1
		LIGHTING CONTROL BOX BIG (L.H)	
111		Stop tail lamp	Ölflex 8x1
112		Upper stop tail lamp	Ölflex 5x1
113		Side marker light	Ölflex 2x1
114		Extra reverse light	Ölflex 2x1
115			
116			
117			
118			
119			
120			
		LIGHTING CONTROL BOX SMALL (R.H)	
121		Stop tail lamp	Ölflex 8x1
122		Upper stop tail lamp	Ölflex 5x1
123		Side marker light	Ölflex 2x1
124		Extra reverse light	Ölflex 2x1
125			
126			
127			
128			
129			
130			
		LIGHTING CONTROL BODY	
141		Side marker light L.H	Ölflex 2x1
142		Side marker light R.H	Ölflex 2x1
143		Beacon L.H	Ölflex 2x1
144		Beacon R.H	Ölflex 2x1
145		Extra reverse lamp/work light L.H	Ölflex 2x1
146		Extra reverse lamp/work light R.H	Ölflex 2x1
147		Extra connection cable (R98) R L work light	Ölflex 2x1
148			
149			
150	F1	Fan	2x1,5 To junction box
		EXTRA FUNCTIONS (L.H)	
151	G51	Brace	Prox. Switch cable

152			
153			
154			
155			
156			
157			
158	G58	DIN-block up	Prox. Switch cable
159	G59	DIN-arm in	Prox. Switch cable
160	G60	DIN-arm position	Prox. Switch cable
		EXTRA FUNCTIONS (R.H)	
161	G61	Brace	Prox. Switch cable
162			
163			
164			
165			
166			
167			
168	G68	DIN-block up	Prox. Switch cable
169	G69	DIN-arm in	Prox. Switch cable
170	G70	DIN-arm position	Prox. Switch cable
		CONTROL BOX BIG (L.H)	
171			
172	G22(b)	Spillage panel	
173	G23(b)	Footstep	
174	G24(b)	Tailgate closed (locking crow)	
175			
176	G26(b)	Auto. bin grip	
177	G27(b)	Bin locking	
178			
179			
180	G30(b)	Lift position	
		CONTROL BOX SMALL (R.H)	
181			
182	G32(b)	Spillage panel	
183	G33(b)	Footstep	
184	G34(b)	Tailgate closed (locking crow)	
185			
186	G36(b)	Auto. bin grip	
187	G37(b)	Bin locking	
188			
189			
190	G40(b)	Lift position	
		EXTRA FUNCTIONS	
191	Y191	Wisch (R.H) in	Valve cable
192	Y192	Wisch (R.H) out	Valve cable
193	Y193	Wisch (L.H) in	Valve cable
194	Y194	Wisch (L.H) out	Valve cable

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103470

Set 1

Cable list GEESINK GPM-III

Revision: 0

Cable no.	Symbol	Name	Cable type
1.2	Y1-Y2	Ejection plate Out / In	Valve cable prop.
3.4	Y3-Y4	Tailgate Up / Down	Valve cable prop.
5.6	Y5-Y6	Joke Down / Up	Valve cable prop.
7.8	Y7-Y8	Packer plate Out / In	Valve cable prop.
9	Y9	Shaker unlocked	Valve cable prop.
10	Y10	Shaker locked	Valve cable prop.
11	Y11	Winch in	Valve cable prop.
12	Y12	Winch out	Valve cable prop.
13	Y13	Bin lift up (split L.H)	Valve cable prop.
14	Y14	Bin lift down (split L.H)	Valve cable prop.
15	Y15	Bin lift up split R.H/small	Valve cable prop.
16	Y16	Bin lift down split R.H/small	Valve cable prop.
17	Y17	Locking tailgate big MF300	Valve cable prop.
18	Y18	Unlocking tailgate big MF300	Valve cable prop.
19	Y19	Locking tailgate small MF300	Valve cable prop.
20	Y20	Unlocking tailgate small MF300	Valve cable prop.
21	Y21	Ejection plate out small	Valve cable prop.
22	Y22	Ejection plate in small	Valve cable prop.
23	Y23	Tailgate up small	Valve cable prop.
24	Y24	Tailgate down small	Valve cable prop.
25	Y25	Carriage plate down small	Valve cable prop.
26	Y26	Carriage plate up small	Valve cable prop.
27	Y27	Packer plate in small	Valve cable prop.
28	Y28	Packer plate out small	Valve cable prop.
29	Y29		
30	Y30		
31	Y31		
32	Y32	Parallell valve	Valve cable
33	Y33	Lift locking on	Valve cable
34	Y34	Lift locking off	Valve cable
35	Y35	On/Off Valve Bin lift	Valve cable
36	Y36	Brace On Left	Valve cable
37	Y37	Brace Off Left	Valve cable
38	Y38	Brace On Right	Valve cable
39	Y39	Brace Off Right	Valve cable
40	Y40	Bincatcher middle (big)	Valve cable
41	Y41	Bincatcher out (big)	Valve cable
42	Y42	Bin catcher in (big)	Valve cable
43	Y43	Bin locking on (big)	Valve cable
44	Y44	Bin locking off (big)	Valve cable
45	Y45	Bin locking on (small)	Valve cable
46	Y46	Bin locking off (small)	Valve cable
47	Y47	Bin catcher out (small)	Valve cable
48	Y48	Bin catcher in (small)	Valve cable
49	Y49	Bin catcher middle (small)	Valve cable
50	Y50	On/Off (Dumpvalve)	Valve cable
		BIG FRACTION L.H	

51	T1	Pressure sensor	Analogous prox. switch cable
52			
53	G1(a)	Carriage plate position (up)	Analogous prox. switch cable
54	G1(b)	Carriage plate position (down)	
55	G2	Packer plate position (out)	Analogous prox. switch cable
56	G3	Packer plate position (in)	
57	G4	Packer plate position (auto)	
58	G6		
59	G7		
60	G8	HLL Door (closed)	Safety sensor
	G5	Tilt, Tailgate open	Internal
		SMALL FRACTION R.H	
61	T11	Pressure sensor (small)	Analogous prox. switch cable
62			
63	G11(a)	Carriage plate position (up)	Analogous prox. switch cable
64	G11(b)	Carriage plate position (down)	
65	G12	Packer plate position (out)	Analogous prox. switch cable
66	G13	Packer plate position (in)	
67	G14	Packer plate position (auto)	
68	G16		
69	G17		
70	G18		
	G15	Tilt, Tailgate open	Internal
		CONTROL BOX BIG L.H	
71	G21	Container sensor	Prox. Switch cable
72	G22(a)	Spillage panel	Prox. Switch cable
73	G23(a)	Footstep	Prox. Switch cable
74	G24(a)	Tailgate closed (locking crow)	Prox. Switch cable
75	G25(a)		
76	G26(a)	Auto. bin catcher	Prox. Switch cable
77	G27(a)	Bin locking	Prox. Switch cable
78	G28	Barrier down	Prox. Switch cable
79	G29	DIN-arm position	Prox. Switch cable
80	G30	Lift position	Prox. Switch cable
		CONTROL BOX SMALL R.H	
81	G31	Container sensor	Prox. Switch cable
82	G32(a)	Spillage panel	Prox. Switch cable
83	G33(a)	Footstep	Prox. Switch cable
84	G34(a)	Tailgate closed (locking crow)	Prox. Switch cable
85	G35(a)		
86	G36(a)	Auto. bin catcher	Prox. Switch cable
87	G37(a)	Bin locking	Prox. Switch cable
88	G38	Barrier down	Prox. Switch cable
89	G39	DIN-arm position	Prox. Switch cable
90	G40	Lift position	Prox. Switch cable
		CONTROL BOX BODY	
91	G41	Inspection door L.H	Prox. Switch cable
92	G42	Inspection door R.H	Prox. Switch cable
93	G43	Level sensor	Prox. Switch cable
94	G44	Temp. Sensor	Prox. Switch cable
95	G45		
96	G46		

97	G47		
98	G48		
99	G49		
100	C1	Supervision camera CCTV	Camera cable
		LIGHTING ELECTRIC BOXES	
101		Number plate light L.H	Ölflex 2x1
102		Number plate light R.H	Ölflex 2x1
103		Beacon L.H	Ölflex 2x1
104		Beacon R.H/Small	Ölflex 2x1
105		Work light L.H	Ölflex 2x1
106		Work light R.H	Ölflex 2x1
107		Work light Extra L.H/Small	Ölflex 2x1
108		Work light Extra R.H/Small	Ölflex 2x1
109		Work light Extra L.H/External	Ölflex 2x1
110		Work light Extra R.H/External	Ölflex 2x1
200		Flash light R.H	Ölflex 2x1
201		Flash light L.H	Ölflex 2x1
		LIGHTING CONTROL BOX BIG (L.H)	
111		Stop tail lamp	Ölflex 8x1
112		Upper stop tail lamp	Ölflex 5x1
113		Side marker light	Ölflex 2x1
114		Extra reverse light	Ölflex 2x1
115			
116			
117			
118			
119			
120			
		LIGHTING CONTROL BOX SMALL (R.H)	
121		Stop tail lamp	Ölflex 8x1
122		Upper stop tail lamp	Ölflex 5x1
123		Side marker light	Ölflex 2x1
124		Extra reverse light	Ölflex 2x1
125			
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130			
		LIGHTING CONTROL BODY	
141		Side marker light L.H	Ölflex 2x1
142		Side marker light R.H	Ölflex 2x1
143		Beacon L.H	Ölflex 2x1
144		Beacon R.H	Ölflex 2x1
145		Extra reverse lamp/work light L.H	Ölflex 2x1
146		Extra reverse lamp/work light R.H	Ölflex 2x1
147		Extra connection cable (R98) R L work light	Ölflex 2x1
148			
149			
150	F1	Fan	2x1,5 To junction box
		EXTRA FUNCTIONS (L.H)	
151	G51	Brace	Prox. Switch cable

152			
153			
154			
155			
156			
157			
158	G58	DIN-block up	Prox. Switch cable
159	G59	DIN-arm in	Prox. Switch cable
160	G60	DIN-arm position	Prox. Switch cable
		EXTRA FUNCTIONS (R.H)	
161	G61	Brace	Prox. Switch cable
162			
163			
164			
165			
166			
167			
168	G68	DIN-block up	Prox. Switch cable
169	G69	DIN-arm in	Prox. Switch cable
170	G70	DIN-arm position	Prox. Switch cable
		CONTROL BOX BIG (L.H)	
171			
172	G22(b)	Spillage panel	
173	G23(b)	Footstep	
174	G24(b)	Tailgate closed (locking crow)	
175			
176	G26(b)	Auto. bin grip	
177	G27(b)	Bin locking	
178			
179			
180	G30(b)	Lift position	
		CONTROL BOX SMALL (R.H)	
181			
182	G32(b)	Spillage panel	
183	G33(b)	Footstep	
184	G34(b)	Tailgate closed (locking crow)	
185			
186	G36(b)	Auto. bin grip	
187	G37(b)	Bin locking	
188			
189			
190	G40(b)	Lift position	
		EXTRA FUNCTIONS	
191	Y191	Winsch (R.H) in	Valve cable
192	Y192	Winsch (R.H) out	Valve cable
193	Y193	Winsch (L.H) in	Valve cable
194	Y194	Winsch (L.H) out	Valve cable

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113460	SEQUENCE TABLE NORBA RL 200/300 L500Split				
MAIN WIRING HARNESS					

No	Pin	Colour	Size	Description	Plinth
X1		CAB		CIRCUIT BOARD	
1	A	White	1.5	T+ (24VDC)	11,+In
2	B	Black	2.5	Minus (0VDC)	GND (PL1)
3	C	Blue	1.5	B+ Beacon	12,+uP,PL18:11,PL18:21
4	D	Brown	2.5	B+ Work light	13,PL12:11,PL12:21,PL27:11
5	E	Grey	1.5	T+/B+ Extra	14 (PL24)
6	F	Red	1.5	B+ Extra/Fan	15,PL26:11
7	G	Purple	0.75	CAN L	CAN L
8	H	Pink	0.75	CAN H	CAN H
9	J	Orange	0.75	Footboard	2 (PL19)
10	K	Transp	0.75	Reserve	16 (PL23)
11	L	Yellow	1.5	NS +In	S13 (PL20)
12	M	Blue/White	0.75	Reserve	18 (PL22)
X1		CHASSIS FRAME		CIRCUIT BOARD	
13	N	Brown/White	0.75	Stop tail lamp R	27 (PL25)
14	P	Grey/Black	0.75	Reverse light	29 (PL25)
15	R	Black/White	0.75	Stop tail lamp L	19 (PL23)
16	S	Red/White	0.75	Fog lamp	28 (PL25)
17	T	Purple/White	0.75	Plate light	30 (PL25)
18	U	Orange/White	0.75	Flash L.H	25 (PL24)
19	V	Yellow/White	0.75	Pos. Light L.H	23 (PL24)
20	W	Orange/Black	0.75	Flash R.H	26 (PL24)
21	X	Yellow/White	0.75	Pos. Light R.H	24 (PL24)
22	Y	Black	2.5	Minus (0VDC), light	GND (PL7)
23	Z	Black	2.5	Minus (0VDC)	GND (PL1)
X1		BODY		CIRCUIT BOARD	
24	a	White	0.75	T+ (24VDC)	+Out (PL8)
25	b	Black	1.5	Minus (0VDC)	GND (PL9)
26	c	Blue/Black	0.75	Beacon	7
27	d	Brown/Black	0.75	Work light/Reverse light	PL27:14
28	e	Green/Black	0.75	Reserve	PL27:24
29	f	Red/Black	0.75	Reserve	8
30	g	Purple/Black	0.75	CAN L	CAN L
31	h	Blue/Red	0.75	CAN H	CAN H
32	i	Blue/Green	0.75	*(Reserve)	21
33	j	Brown/Green	0.75	*(Reserve)	22
34	k	Yellow/Red	0.75	Pos. light L.H	23
35	m	Yellow/Blue (Yellow/Purple)	0.75	Pos. light R.H	24

NOTE! *(Reserve)-labelled will not be connected

CONTROL BOX TAILGATE					
No	Pin	Colour	Size	Description	Plinth
X2		LEFT		CIRCUIT BOARD	
1	A	White	1	T+ (24VDC)	+Out (PL8)
2	B	Black	1	Minus (0VDC)	GND (PL9)
3	C	Blue	1	Flash L.H	25 (PL24)
4	D	Brown	1	Stop tail lamp L	19 (PL23)
5	E	Grey	1	Reverse light	29 (PL25)

6	F	Red	1	Fog light	28 (PL25)
7	G	Purple	1	CAN L	CAN L
8	H	Pink	1	CAN H	CAN H
9	J	Orange	1	Footboard	>>> (diod) 2 (PL19)
10	K	Transp	1	Reserve	
11	L	Yellow	1	Return	3 (PL19)
12	M	Blue/White	1	Pos.light L.H	23 (PL24)
X3			RIGHT		CIRCUIT BOARD
1	A	White	1	T+ (24VDC)	+Out (PL8)
2	B	Black	1	Minus (0VDC)	GND (PL9)
3	C	Blue	1	Flash R.H	26 (PL24)
4	D	Brown	1	Stop tail lamp R	27 (PL25)
5	E	Grey	1	Reverse light	29 (PL25)
6	F	Red	1	Fog light	28 (PL25)
7	G	Purple	1	CAN L	CAN L
8	H	Pink	1	CAN H	CAN H
9	J	Orange	1	Footboard	>>> (diod) 2 (PL19)
10	K	Transp	1	Reserve	
11	L	Yellow	1	Return	3 (PL19)
12	M	Blue/White	1	Pos.light R.H	24 (PL24)

LIGHTING CABLE5					
No	Pin	Colour	Size	Description	Plinth
			ELECTRIC BOX		CIRCUIT BOARD
101		White	1	Number plate light L.H	30 (PL25)
		Black	1		GND (PL7)
102		White	1	Number plate light R.H	30 (PL25)
		Black	1		GND (PL7)
103		White	1	Beacon L.H	7
		Black	1		GND (PL7)
104		White	1	Beacon R.H	8
		Svart	1		GND (PL7)
105		White	1	Work light L.H	5
		Black	1		GND (PL7)
106		White	1	Work light R.H	6
		Black	1		GND (PL7)
107		White	1	Work light L.H inner	5
		Black	1		GND (PL7)
108		White	1	Work light R.H inner	6
		Svart	1		GND (PL7)
109		White	1	Work light L.H outer	5
		Black	1		GND (PL7)
110		White	1	Work light R.H outer	6
		Black	1		GND (PL7)
			CONTROL BOX		CIRCUIT BOARD
X		White	1	Pos.light	1
		Black	1	Minus	GND
		Blue	1	Flash	2
		Brown	1	Stop tail lamp	3
		Grey	1	Reverse lamp	4
		Red	1	Fog light	5

PROXIMITY SWITCH CABLES					
No	Pin	Colour	Size	Description	Plinth
CIRCUIT BOARD					
51	1	Brown		Pressure sensors	+Out (PL8)
	2	White			AI5
	3	Blue			GND (PL10)
	4	Black			
53	1	Brown		Carriage plate	10V (PL10)
	2	White			AI3
	3	Blue			GND (PL10)
	4	Black			
55	1	Brown		Packer plate out	+Out
	2	White			
	3	Blue			GND (PL10)
	4	Black			AI4 in serie with 100k
56	1	Brown		Packer plate in	+Out
	2	White			
	3	Blue			GND (PL10)
	4	Black			AI8 in serie with 100k
57	1	Brown		Packer plate out	+Out
	2	White			
	3	Blue			GND (PL10)
	4	Black			AI6 in serie with 100k

VALVE CABLES					
No	Pin	Colour	Size	Description	Plinth
CIRCUIT BOARD					
1		White		Ejection plate out	G2:1A+
		Black			G2:1A-
2		White		Ejection plate in	G2:1B+
		Black			G2:1B-
3		White		Tailgate up	G2:2A+
		Black			G2:2A-
4		White		Tailgate down	G2:2B+
		Black			G2:2B-
5		White		Carriage plate down	G2:3A+
		Black			G2:3A-
6		White		Carriage plate up	G2:3B+
		Black			G2:3B-
7		White		Packer plate in	G2:4A+
		Black			G2:4A-
8		White		Packer plate out	G2:4B+
		Black			G2:4B-
13		White		Bin lift up L.H	G1:1A+
		Black			G1:1A-
14		White		Bin lift down L.H	G1:1B+
		Black			G1:1B-
15		White		Bin lift up R.H	G1:2A+
		Black			G1:2A-
16		White		Bin lift down R.H	G1:2B+

		Black			G1:2B-
50		White		On/Off	4
		Black			GND (PL1)
43		Brown		Bin locking on L.H	G2:DO5
		Blue			GND (PL1)
44		Brown		Bin locking off L.H	G2:DO6
		Blue			GND (PL1)
45		Brown		Bin locking on R.H	G2:DO7
		Blue			GND (PL1)
46		Brown		Bin locking off R.H	G2:DO8
		Blue			GND (PL1)
151		White	2x1,5	Fan	PL26:14
		Black			GND (PL1)

INTERNAL CONNECTION					
No	Pin	Colour	Size	Description	Plinth
KRETSKORT					
01		Red		NSH	T12,G1:DO1
02		Red		NSL	T14,G1:DO2
03		Red		NSRESET	+Out,T34
019-020		Red		NS+Out	S14,+G1,+G2,+DO G2,
010		Red		DO+Out	+Out,+DO G1
		Red		Tilt	In, +Out (PL1)
011		Red		Tilt	Out, DI1
012		Red		Emergency stop OK	S14,DI2
014		Red		Reverse signal	29,DI4
023		Red		Return	3 >>>(Diode)G2:3B+
024		Red		On/Off	S14 >>>(Diode)4
				On/Off	3 >>>(Diode) 4 (PL19)
05		Red		Work light	PL12:A1,G1:DO5
025		Red		Work light	PL12:14,5
026		Red		Work light	PL12:24,6
06		Red		Beacon	PL18:A1,G1:DO6
027		Red		Beacon	PL18:14,7
028		Red		Beacon	PL18:24,8
07		Red		Work light/Back	PL27:A1a,A1b,G1:DO7
08		Red		Fan	PL26:A1a,G1:DO8
		Black		Fan	PL26:A2,GND(PL1)
		Red/White		Backsummer	G1 DO4
		Black/White		Backsummer	GND (PL7)
				Extra relay	PL27:A2, GND (PL7)



1	A	White
2	B	Black
3	C	Blue
4	D	Brown
5	E	Grey
6	F	Red
7	G	Purple
8	H	Pink
11	L	Yellow
9	J	Orange
10	K	Transparent
12	M	Blue/White





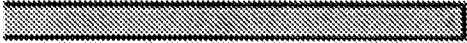




EXHIBIT S

IO and cables list from Project 255 Properties

General Summary Statistics Contents Custom

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